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MANUAL

OF THE

Elementary Course of Study

FOR THE

COMMON SCHOOLS OF WISCONSIN.

Eighth Edition (Revised).

OLIVER E. WELLS,

STATE SUPERINTENDENT.

NOTE.—This Manual is designed not only for the present, but also for the future use of the common schools. The teachers of these schools, and the clerks of the district boards, who may receive copies of it, should preserve them.

MADISON, WIS.:
DEMOCRAT PRINTING COMPANY, STATE PRINTER,
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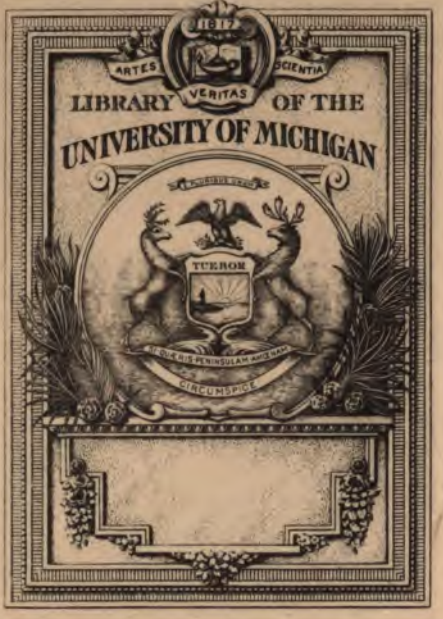

THE GIFT OF
Prof.F.C.Newcombe

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Eng. F. C. Newcombe
9-15-1923

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EDUCATIONAL MAXIMS.

Only one thing should be taught at one time, and an accumulation of difficulties should be avoided.

[One thing may mean one branch, one topic, or a single point in one topic; the latter is intended, and the maxim directs to teach each point completely before passing to the next. To follow it the points will have to be arranged in their natural order, so that in teaching one we may not imply another not yet mastered.]

No exercise should be so difficult as to discourage exertion, nor so easy as to render exertion unnecessary.

[Beget in the pupil a sense of progress, and a sense of his own power to do, as the proper stimulus to exertion.]

Instruction should proceed from the known to the unknown, from the simple to the complex, from the concrete to the abstract.

[(a) What the child knows is the material to be used in teaching him more; (b) and this must be done by taking up first what he will understand most easily; (c) and presenting particular, concrete instances, until he is able to derive from them for himself the principal rule or generalization.]

The development of the child's powers is of more importance than the acquisition of knowledge; therefore, make the latter always contribute to the former.

[The method to be followed is indicated in the following maxim:]

The teacher's business is to help the learner to teach himself.

[Avoid doing the work for the pupil; teach him in such ways as will help him to teach himself; lay out the work for him, supply motives for self-exertion, develop power of self-criticism.]

Teach individuals so as to teach the class, and see to it that each pupil receives suitable instruction and does profitable work.

Provide employment for the hands of young children and frequent changes of work for them.

Teach things, not mere words.

[In oral teaching the idea should be impressed upon the mind of the pupil before the word which expresses it; but when a new term occurs the teacher should see to it that the pupils form some conception of what it means.]

INTRODUCTION.

1. In preparing this edition, the eighth, of the Manual of the Elementary Course of Study for the Common Schools of Wisconsin, an effort has been made to make the statements relating to the scheme of work as plain as possible.

2. In order to facilitate reference to any part of the Manual the paragraphs have been numbered consecutively though the plan of arrangement by topics under each branch has been retained.

3. The matter in each branch and in all the forms has been carefully revised and such changes have been introduced as time and experience have seemed to prove desirable. Great care has been taken to make this part of the work practical, clear, and in conformity with the best modern methods. A word of caution seems to be necessary at this point. In outlining any course of study it is impossible to indicate in detail all the work that is desirable or even necessary to do, or all the means by which the ends proposed may be reached. Much must be left to the tact and skill of the teacher. The large amount of drill necessary in all elementary instruction leaves a wide margin for the individuality of the teacher in the selection of matter and in variety of methods.

4. Attention is called to the summary of the course of study where, under an enumeration of the branches included in each Form, are brief statements of the general character of the work. Here it is easy to trace the gradual changes in each branch through the several grades.

5. A program of daily work is given, not as an arbitrary form to be strictly followed in all cases, but

as a guide and suggestive illustration. The same may be said of the records of attendance and classification. Any teacher can easily make up a few sheets and rule them, and record therein the number of classes in each Form by terms and the classification of every pupil enrolled as soon as his place is assigned to him.

SCOPE OF THE COURSE OF STUDY.

6. This course is based on the requirement of the law that certain branches shall be taught in the public schools. Section 447, of the Revised Statutes, contains this provision: "Orthography, Orthoepy, Reading, Writing, Grammar, Geography, Arithmetic, the Constitution of the United States, and the Constitution of this state, shall be taught in every district school, and such other branches as the district board may determine." A later law (Ch. 327, 1885) requires that provision shall be made by the proper local school authorities for instructing "all pupils in all schools supported by public money or under state control, in physiology and hygiene with special reference to the effects of stimulants and narcotics upon the human system." Instruction in drawing and vocal music is made optional for two reasons: first, the law does not specially provide that these studies shall be taught in our public schools; second, the majority of the teachers in our elementary schools are not yet qualified to teach them. Still, it is urged that regular exercises in these should be conducted whenever the district board is willing, the teacher is competent, and the ordinary work of the school would not be impaired thereby. It is recommended that oral lessons in morals and manners and in the elements of some of the natural sciences be presented in the general exercises throughout the course, whenever this can be done to the advantage of the pupils.

7. The attempt is made to adapt the instruction in the various branches to the needs of the pupils

in attendance upon the district schools and to the general conditions under which these schools are organized and managed. There is kept constantly in mind the effort of the past few years in our teachers' institutes and normal schools to furnish a clearer understanding of the elementary studies, and of suitable methods for teaching the different subjects. Without doubt the state will have to depend upon these agencies for the same service for several years to come.

8. A period of nine years is usually required for a child in our rural schools to gain a fair knowledge of the common branches. The brighter pupils may accomplish this work in less time, while the duller ones will be occupied for a longer period. A very large percentage of the children in the state receive before they reach sixteen years of age all the culture which they ever obtain in our schools. The plan herein adopted, and approved by the Wisconsin Teachers' Association, is to group the studies of the course into large divisions, each of which can be mastered by the pupils in three years, on an average. It would not be desirable, if it were possible, to draw an arbitrary line separating with precision all the work suitable for primary pupils from that of an intermediate grade. It is believed, however, that a reasonable and practical division is made herein that will serve as a general guide, though in individual cases some departures from the lines here drawn may be found profitable. On this classification the pupils in our country schools can be divided according to the studies which they are pursuing, into three groups, designated as the PRIMARY, MIDDLE and UPPER FORMS.

9. The principal idea of the course is to grade the work of each pupil to a proportionate advance in each of the branches composing a Form; and the subordinate idea is to grade the school into three sections, each working in but one Form. In other words, a "Form" is a body of related work, and is not a group of pupils. It is not the purpose of this gradation to regulate one pupil's progress by that of another, but to require each pupil to make equal

progress in all the branches. In other words, the course *shows how* much geography or language a boy should *know when* he has acquired a certain knowledge of arithmetic. It must be borne in mind that as each Form comprises several classes, all of a Form can neither enter nor leave it at one time. The promotion of each pupil will depend upon his own ability, industry and regularity of attendance. At the same time, the skilful teacher will be able to preserve reasonable uniformity in the progress of all the pupils, that is, to maintain a proper classification.

10. Following is a brief summary of the course in convenient form for reference:

SUMMARY OF THE COURSE OF STUDY.

	Primary Form.	Middle Form.	Upper Form.
READING	Recognition of words, pronunciation, sentence-reading drill; word and phonic methods.	Learning familiar words continued, gaining increased power over new words; reading for thought; use of dictionary begun; abundant careful drill.	Reading to get information, and for thorough drill in expression; supplementary reading; use of library to cultivate love of reading; readiness in using the dictionary.
SPELLING	Copying words; oral spelling; some written, (See Language.)	Oral spelling from the various text-books used; writing from dictation; reviews from Speller.	Text-book; drill in oral and written work; careful correction of all misspelled words; two or three rules of spelling.
LANGUAGE	Errors in speech corrected and expression cultivated; writing narratives and descriptions in correct form and full sentences; capitals; terminal marks.	Forms of pronouns, possessive, adjectives, plurals, and irregular verbs; composition writing; capitals; punctuation; letter-writing.	Composition writing; analysis and expansion of sentences; rules of syntax.
NUMBER	The four rules, tables begun; work mainly on numbers under 1,000.	Drill in operation ; tables learned; integral, fractional and compound numbers; analysis of problems.	Denominate numbers; percentage and its applications; ratio; roots; mensuration; thorough drill in analysis.
GEOGRAPHY	Fundamental ideas developed; oral lessons on natural objects, and occupations of men; means of communication; exchange.	Oral exercises with globe; maps and map language; map drawing; text-book and supplementary reading.	Tracing and sketching; commercial, political and historic points located; physical and mathematical geography; reviews.

	Primary and Middle Forms.	Upper Form.
NATURE LESSONS	Observation and expression cultivated through a study of animal and plant forms, life and uses.	Reasoning faculties cultivated through study of causes of natural events observed, and of physical changes familiar to pupils.
PHYSIOLOGY	Conversational and general exercises on the parts of the body; foods, health, habits of living, cleanliness, stimulants and narcotics.	Text-book used; accompanied by experiments and illustrations; hygiene; stimulants and narcotics.
HISTORY..... .	Oral exercises on mythology and on historical and biographical stories. Use of library books.	Discoveries, settlements, colonial life, claims, struggles for independence, political history, especially of the "critical period," growth under the constitution.
CONSTITUTION	Talks on political events known to the children.	Topical study of constitutions, using text-book; principal features of our form of government.
WRITING	No division into Forms. Stress laid upon movement to secure legibility and rapidity.	

ELEMENTARY COURSE OF STUDY.

READING.

11. The ultimate purpose of school work in reading is three fold:

1. To give pupils the ability to obtain knowledge from the printed page.

2. To train them to give intelligent, agreeable and effective oral expression to the thought.

3. To cultivate a taste for profitable reading and right habits in reading.

12. That these results may be obtained:

1. The pupil must acquire a mastery of the oral elements, an adequate vocabulary of words which he knows in both their spoken and written forms, and the ability to interpret readily these symbols of thought.

2. The pupil must have at hand good books of proper grade, and be guided in reading them in school and at home.

13. Reading is not an end but an important means of moral and intellectual culture. Proficiency in reading is more likely to lead to lifelong educational progress than proficiency in any other branch taught in the schools. Hence enough time and care should be given to reading to make it easy and delightful.

I.—PRIMARY FORM.

14. The leading purpose in the Primary Form is to secure a mastery of the words found in the Primer, and in the First and Second Readers. To be able to recognize these words at sight, and at the same time to recall the ideas

simple as possible, very nearly like italics, without unnecessary connecting lines. Those forms of capitals most like small letters, and forms of small letters most resembling print, are to be preferred, then little trouble will be found in passing from script to print, or the reverse. To teach to print seems wholly needless.

17. Reading charts are valuable chiefly for the purpose of drill in calling words and sentences at sight. The chart work must be supplemented by rapid and varied drill upon words on the board to insure recognition at sight, independent of position on the chart or relation to pictures.

18. The proper order in primary reading is first, the idea, then the spoken word expressing the idea, and last the written or printed form. Objects and pictures are important means in presenting to the mind of the child the ideas represented by the written or spoken word, and are of great value in teaching the names of objects to the child who does not understand the English language. They are also of use in language work. But the teacher must make these uses separate and distinct or they will prove a hindrance to calling words at sight, that is, learning to read. The child's real work is the mastery of the printed word. The teacher should not lose sight of the ever present difficulty of learning to pronounce words at sight. New words should be mastered before the child is required to read them in sentences or paragraphs. There should be constant drill and frequent reviews.

19. The word to be mastered must be shown to the pupil and pronounced for him. He should then be drilled upon it until he recognizes it instantly and pronounces it correctly. To introduce the phonic method, the teacher should pronounce slowly some simple short words, as c-a-t, bat, mat, man, can. until the pupil catches the separate sounds and is able to utter them distinctly. When he can make the sound of any letter, and recognizes the letter as the sign of that sound, he is ready to pronounce for himself, without the aid of the teacher, new words made up

of such letters. When by making the sounds of a word in their order, he recognizes that the result is a spoken word already familiar to him, he is fairly started toward a mastery of the art of calling words at sight. The pupil should be required to 'spell by sound,' as above stated, only short words or syllables, and encouraged and required to pronounce longer words by syllable, and to attack new words one syllable at a time. (222.)

20. When the pupil has reached the Second Reader, most of the recitation time should be spent in actual reading. As the pupil advances he should read short, easy pieces, without preparation, as an exercise in sight reading. (See remarks on "The School Library.") At first these exercises should be new combinations of known words. Gradually new words should be introduced as a means of acquiring the principles of pronunciation by analogy. All exercises such as copying words, spelling by letter or by sound, the use of words in sentences, memorizing parts of lessons and exercises introduced for the practice of connecting ideas with words, are means of securing the results to be attained in primary reading.

21. Teach only such diacritical marks as are necessary to use the reading books. In most cases this will mean none at all except possibly the macron and breve. Make lists of words of similar sound, as can, fan, man, pan; bet get, wet; flat, hat, slat; tar, star, to teach by analogy the sounds of letters in various positions. Thus they may learn first to spell syllables, then words of several syllables.

22. Particular care should be exercised in overcoming any hesitancy in the utterance of sounds or words, any clipping or slurring of the consonant sounds, and any substitution of one vowel or consonant sound for another. (34 32.) If the pupil has difficulty in pronouncing any word, [illegible] pronounce it slowly, followed by the pupil [illegible] is found. Then show how the word should be [illegible] until it is made easily and correctly. [illegible] foreign parentage and those whose

prounciation has been neglected may thus be shown how to make those sounds that are specially troublesome to them.

23. Cultivate a pure, natural tone in reading. Strive to make the reading pleasant to listen to, not loud, harsh and mechanical. The teacher should frequently furnish in his own reading the model in articulation, in agreeable tones and in modulations of voice to be imitated by the pupils. They should know so well the words and the thought in the sentence or paragraph to be read, that they can express the sentiment as their own, as they do in talking. They will then use correct emphasis and inflections easily because naturally. Such training should begin in the simple sentences of the First Reader. To read as we talk is the highest art.

24. The language lessons properly associated with reading in this form should be made subordinate and supplementary to the main purpose of primary reading. The matter of the language exercises should be so related to that of the reading lesson that each will help the other. The words of the reading will thus be learned and practice given in their correct use, and the sentences read will express the pupil's own thought and hence be read with expression.

25. Whether learning to read shall be wholly a task, or yield enough enjoyment to make it a pleasure, will depend much on what the teacher can do under **15.** (7 and 8.) A judicious use of children's stories, of fables, and of simple poems written for children, will go far to lighten the drudgery incident to this work. The selections for memorizing may be made by the teacher to cultivate a love for the best in American literature. Longfellow, Whittier and others have many choice pieces for this purpose. (**48, 38.** Also, "School Librairies.")

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COURSE OF STUDY.

29. 1. Substance of the lessons to be stated orally by the pupil, occasionally in writing.

2. Drill in articulating difficult combinations of sounds.

3. Uses of the dictionary learned and the habit of using it cultivated.

4. Drill in reading the lessons studied and in reading at sight similar selections outside the text-books in use.

5. Reading, in school and at home, juvenile classics such as fairy stories, stories from Shakespeare, Homer and Chaucer, and true stories in biography, history, geography and science.

6. Choice selections memorized and recited. (**25.**)

SUGGESTIONS TO TEACHERS.

30. To secure proper study of the lessons teachers should require specific preparation for recitation on these points:

1. Statement of what the lesson contains.

2. Use of new words in sentences to show their meaning.

3. Pronunciation of difficult words.

4. Oral reading of paragraphs or of the entire lesson.

Attention to 1 and 2 above will help to counteract the tendency to mechanical and monotonous reading which comes from lack of understanding and consequent lack of interest. The teacher who is not herself interested, or who is busy helping pupils in some other class, will not be likely to inspire her pupils with much zeal in reading.

31. Many cases of halting and lifeless reading arise from a failure to study the new words so that they may be spoken without hesitation.

32. Pupils should be taught the use of the dictionary in finding the pronunciation and meaning of new words. Attention to diacritical marks must not be allowed to crowd

out the far more useful practice of close attention to pronunciation. It is a serious waste of energy and time to teach pupils to mark words which they are often unable to pronounce as they are marked. If pupils consult the dictionary and lists of marked words in their readers, they will gradually become familar with the more common signs, while special attention to the matter of marks in the early years will take their attention away from the real work of reading. They should, however, be carefully drilled in accurate pronunciation of the key-words, and of the sounds the key-words are used to illustrate, and in the comparison of other words with the key-words. (**22.**)

33. Sight reading of selections not contained in the text-book is an important means of securing ready recognition and interpretation of words and sentences. (**20.**)

34. In recitations, oral drill in reading the lessons assigned should follow, not precede, the work of testing the pupil's preparation upon **29** (1, 2, 3). The exercises for vocal drill usually contained in the text book of this form should not be neglected.

35. As the pupil advances in the work of this Form more attention should be given to proper oral reading of the entire lesson in place of the more careful and critical reading of small portions. It is well sometimes to overlook mistakes of pronunciation or inflection, when a pupil is reading with spirit and fair expression, rather than to check his enthusiasm with trifling corrections. In reciting choice selections from memory great care should be taken to secure correct oral expression. (**23.**)

36. Supplementary reading should increase as the pupil advances. From reading to gain greater facility the pupil passes to reading for the pleasure he finds in the exercise of his imagination, and then to a habit of reading to gain information.

37. The teacher should frequently read to the pupils parts of books which he would induce them to read, and they should be encouraged to read outside of school by allowing them to tell in recitations what they have read,

and occasionally to read before the class or the school extracts from books which have interested them. (25.)

38. The teacher should strive to awaken an interest in reading both for the worth of the thought and the beauty of its expression. But the richest results of this exercise can be secured only when appropriate supplementary reading stimulates pupils to read for pleasure and profit at home as well as at school. (See School Library.)

TESTS FOR PROMOTION.

39. The pupil should be able:

1. To pronounce any words found in the reader, to use them correctly in sentences, and to produce separately most of the elementary sounds.
2. To read with intelligence and expression any lesson in the Third Reader, and any selection of easy prose not previously studied.
3. To recite well choice selections equivalent to four pages in the reader.
4. To state in his own language the substance of these lessons.

III.—UPPER FORM.

COURSE OF STUDY.

40. 1. Fifth Reader where suitable supplementary reading matter, which is much to be preferred, can not be obtained.
2. Historical, geographical, literary and scientific allusions found in the lesson explained.
3. Analysis of the lesson to enforce the habit of reading for the thought, and drill in oral reading of the lessons so studied to secure easy, forcible and agreeable expression.
4. Reading, in school and at home, books of travel, history, science, literature and art. (See School Libraries.)

SUGGESTIONS TO TEACHERS.

41. Require pupils to give the substance of the selection studied. Test the accuracy of their knowledge by questions. Require them to separate paragraphs into sentences, and to analyze sentences sufficiently to enforce a critical attention to the language used. Show how the thought is modified by qualifying words, phrases or clauses.

42. After the thought of the piece has been made clear, give oral drill in expression by paragraphs, and finally require the entire selection to be read by individual pupils. Attend carefully to emphasis and inflection as vital elements in oral expression. (**35, 23.**) Occasionally read short selections to the class, and require pupils subsequently to give the substance of these selections orally or in writing.

43. Keep constantly in view the purpose of reading, **11, 12, 13**, and do not permit the recitations to drift into a dull, thoughtless or monotonous routine of calling words. Make and require careful preparation of the lessons assigned, as a means of bringing out the thought of the selection and arousing an interest in the subject. In work under **40** (2) make use of the appendixes in the Dictionary, and of the Young Folks' Cyclopedias. The latter will be found very helpful, the more so if the index in each volume is freely used.

44. Pupils should be taught, and required, to use effectively the unabridged Dictionary, including the introductory chapters on Pronunciation and Orthography, as well as the various appendixes. Particular care should be given to the proper pronunciation of the key-words, and the separate utterance of each vocal element liable to be given incorrectly. (**32.**)

45. Too much care will hardly be given to distinct and agreeable enunciation of the common sounds of the language, free from nasal tone, harsh, gutterul quality, or other defect. Accurate, musical speech is an evidence of

culture. The knowledge of diacritical marks and of the fine distinctions of orthoepists is valueless, solely as knowledge, though it may be made an aid to correct pronunciation. There should be more dictionary work, directed to the practical end of purer speech.

46. It will be the study of the teacher to give the pupil in each form the help he most needs; and it may happen that primary work is needed by an Upper Form pupil. (21-22.)

47. Let the class sometimes close their books and listen to the reading of some one member. This will not only train them in attention, but afford a satisfactory test of the reader's ability to make himself understood and to give the thought to one who has no other means of getting it. Similar use may be made of some book or selection of which but one copy can be had.

48. The teacher should call attention to fine passages, or beautiful images, or happy choice of words, or oft-quoted phrases, in order to cultivate the taste of pupils for what is really good and healthful in literature, and so lead them to a better appreciation of the works of the best authors. Selections of poetry are especially suited to this purpose. It ought not to be possible for a pupil of this form to be in a reading class through a term without studying carefully more than one masterpiece of literature. Some of the best literature may be had at a moderate cost, (28) and in a large number of schools it only needs the leadership of an enthusiastic teacher to get an abundant supply. From such material may be got choice selections for memorizing; pieces which the pupils have learned to admire and enjoy.

TESTS FOR GRADUATION.

49. 1. Ability to read intelligently and with good expression any selection in the Fourth Reader.

2. Ability to give a clear statement of the meaning, to define the words used, and to explain the allusions.

3. Ability to modulate the voice at will in stress, volume, pitch, rate, inflection and quality.

4. Ability to recite well choice selections of prose and poetry equal to six pages of the reader.

5. Ability to use the Dictionary intelligently.

LANGUAGE.

50. The chief aim of the course of instruction in Language is to give the pupil the ability to *use* language *correctly*. To secure this result, a knowledge of the science of grammar, or of the history of the language is not so necessary as attention to the forms of words used in ordinary conversation, and to the study of the works of the best authors. "It is constant use and practice under never failing watch and correction that makes good writers and speakers." Hence, constant attention must be given by the teacher to the pronunciation, writing, spelling, and grammatical forms of words used by the pupil, not only in so-called language lessons, but in all the work of the school. "Line upon line, here a little, there a little" must be ever the teacher's thought.

I.— PRIMARY FORM.

51. At first the main effort will be directed to securing correct use of the words the child already knows. To this end he must be led to talk freely, the basis of the work being his reading lessons or pictures, or something else in which he is interested — since he must have something to talk about, in order to avoid mere profitless sentence-making. The ability to express his thought clearly, simply and correctly should keep pace with his acquisition of knowledge. As ideas should precede words in all language work, so suitable oral expression should precede all written work. Pupils who can state clearly what they think or know, and can then write correctly what they

have said, have the best result of careful grammatical training.

COURSE OF STUDY.

52. 1. Get the pupils to talk with you about what they have seen or done. Aim to secure the use of *complete sentences.* Give especial attention to the correct use of *is* and *are, was* and *were, has* and *have.*

2. In written work, teach pupils to use a capital letter at the beginning of every sentence, and for the pronoun I, and to use the period and question mark correctly. Teach the pupil to write his own name, and let him practice copying words and sentences from blackboard, chart and primer.

3. Teach pupils to write names of persons, places, days and months, to extend their knowledge of capitals. Teach, also, a very few of the most common abbreviations, such as they meet in their books.

4. Teach the use of common forms liable to be used incorrectly, such as, to, too; hear, here; no, know; son, sun; flour, flower; by, buy. (**61.**)

5. Teach the correct use of saw, seen; did, done; went, gone; sit, sat; run, ran and other common irregular verbs used by the pupils.

SUGGESTIONS TO TEACHERS.

53. Through conversations about familiar objects and pictures, the teacher should aim to secure natural and free expression of thought, taking care in the correction of mistakes not to check the interest and efforts of pupils. Success in work here outlined for the primary form depends upon the skill of the teacher in selecting proper means to interest and enlist the sympathies of pupils. She must also direct the work so as to lead by easy steps to the habit of using correctly words which are liable to be used incorrectly in conversation *outside of the school.* (**71.**)

54. In the selection of objects, only such as are familiar to pupils should be introduced, such as pets, toys, objects in the school room and objects at home, or such other objects as can be readily understood by children or be made interesting to them; as rare or curious shells, pictures of animals or natural scenery, or the animals themselves or flowers. In the case of children who do not speak English, follow as nearly as possible the common method of the home. Touch or point to an object and speak its name; perform an act or have a pupil do it, and speak the verb. See that they play with children who do speak English, if possible. Do not check early efforts to speak our language by criticism of mistakes or too great desire for accuracy. Accept from beginners everything that is tolerable. The language of courtesy and politeness in school, at home and on the street should be taught. **(69, 175, 176.)**

55. In primary work, and in giving definitions and statements of principles, pupils should be required to talk in full sentences, wherever in ordinary conversation inteligent people would do the same. To get this result easily, avoid questions that can be answered by a single word, and use suggestive questions that naturally invite the use of a subject and a predicate. Thus the rigid and mechanical character of a school exercise with sentences of set form is softened, and pupils express themselves more naturally, and hence more freely. They learn to talk easily, and the first important point in language training is gained.

56. Notice that the most common mistake in the use of the verb in **52** (5) is the wrong use of the singular form; the plural will take care of itself. In **52** (5) "done" is often used for the past, while "went," the past form, is specially liable to be wrongly used. Teach pupils to watch for the error peculiar to each word.

Where an incorrect statement is made, means should be used to secure the correct form, and if the mistake suggests a common error, frequent repetition of the correct form is indispensable. Avoid the repetition of incorrect forms. In any written work of this stage, first secure the

[illegible]

57. [illegible]

58. In oral lessons with objects or pictures observations should be so directed by the teacher that variety in the expression of qualities and actions will be secured. Sameness in the construction, such as, the apple is large, the apple is red, the apple is ripe, should be avoided.

59. Reading lessons and simple stories read or better, told to pupils may form the basis of profitable exercises in oral language in the latter part of the primary stage. Pupils may be required to answer questions upon what has been read or told or to reproduce in their own language what they remember. (See School Libraries.)

It can not be said too often that language is a means of expressing thought, and the more a pupil has to tell the better will be his language work. Ideas must precede expression. Hence the vital necessity that the work indicated in **54, 58** and **61** be live, stimulating, using the powers of observation, imagination and judgment.

60. The work outlined in primary geography and nature lessons may be profitably used as material for conversational exercises. Such work should secure accurate observation and valuable knowledge, as well as training in expression. Committing good selections to memory, suggested in connection with the work in reading, has a powerful influence in the formation of correct habits in the use of language. (25.)

61. In the work with words or forms of words that are liable to be used incorrectly, sentences with blanks for the words or forms to be learned, and questions which re-

quire the word or form in the answer, are suggested. These words or forms may be placed upon the board, and pupils may be required to construct simple sentences, using them correctly. At this stage of a child's training avoid sentences involving the use of both forms of words, as son and sun and similar forms. Such exercises may easily be made more confusing than helpful.

62. The division of the work given above into sections for each year seems unnecessary. In many cases pupils may do all the work of the primary course in language in one year if they have previously learned to read. The correction of errors is a large element in the language work of this form. In general no separate recitation in this branch is necessary or desirable, being associated with reading lessons. (Nature Lessons, **319.**)

63. On this part of the work, and that of the Middle Form teachers will be greatly aided by using a suitable book as a guide, such as Metcalf's Language Exercises (A. B. Co.), or First Lessons in Language, (Leach, Shewell & Sanborn).

TESTS FOR PROMOTION.

64. On the completion of the work outlined for the Primary Form pupils should be able:

1. To answer in full statements questions upon the lessons studied in reading and other subjects.
2. To use correctly in sentences words given them by the teacher.
3. To write simple sentences from dictation, using capitals and punctuation marks.
4. To form sentences, orally and in writing, showing the correct use of *is*, *are*, *have*, *has*, and other words given in the outline of work.
5. To write single descriptive sentences from objects and pictures, or to reproduce a short story told by the teacher.

II.— MIDDLE FORM.

65. The purpose of the work in this form is to train the pupil to think connectedly and to speak and write clearly and correctly.

COURSE OF STUDY.

66. 1. The work of the Primary Form with words and simple sentences should be continued. Secure correct use of the forms of personal pronouns, the possessive and plural forms of nouns, the forms of adjectives compared, and of common irregular verbs, such as lie and lay.

2. Change sentences having verbs in the present tense to sentences whose verbs are in the past or future tenses.

3. Practice writing brief compositions on simple and familiar topics.

4. Practice expanding simple sentences by introducing adjective and adverbial words and prhases. Practice also combining simple descriptive sentences relating to the same object.

5. State orally and in writing the substance of lessons studied in the reading book, and lessons in nature.

6. Letter writing, with special reference to punctuation, form and arrangement of parts.

SUGGESTIONS TO TEACHERS.

67. In oral lessons and descriptions follow the suggestions given in the preceding Form in regard to sentence making, use of words in sentences to indicate their meaning, and the correct use of forms liable to be used incorrectly.

68. Knowledge of the use of capitals, punctuation marks, and abbreviations must be secured by practice in writing. In letter-writing, a model should be given and learned in all its parts; pupils may then be required to put simple narrative or description into letter form. (**175, 176.**)

69. Pictures may be made effective in the cultivation of the perceptive faculty if pupils are required to note the relations of persons and things to time and place. Teachers should use them also to quicken the pupil's imagination, to increase his vocabulary and his power in the use of words. Pictures easily attract and hold the attention of the child; and if his observation be guided by suggestive questions and directions, he will soon be able to write simple stories based upon the pictures studied. The material of these stories should be drawn from the pupil in the form of simple statements; after which he should be required to weave these statements into written stories expressed in correct forms.

70. In dealing with the etymology of nouns, pronouns, adjectives and verbs, suggested in the outline, the subject should be treated from the practical standpoint, rather than form the scientific. Though systematically planned by the teacher the work should not be exhaustive. It should be confined to cases of common occurrence, and emphasis should be placed upon irregular rather than regular forms. No effort at grammatical theory is contempleted, but rather a knowledge of the correct use of common words and forms. Teachers should be guided in this work by text-books on language and grammar. Technical terms, as subject, phrase, adjective, may properly be employed by the teacher as a matter of convenience and thus their use incidentally learned; but a knowledge of the classifications and properties of the parts of speech should not be regarded the ultimate purpose of the instruction in this Form.

71. The teacher should note the common errors of the home and the play-ground, and secure their correction before the incorrect use becomes habitual. Give special attention to pronouns, past tenses of verbs, and singular verb forms in *s*.

72. It must be borne in mind throughout the work in this Form that skill in the use of language is dependent upon clear and accurate ideas, and that correct expression cannot precede correct thinking.

TESTS FOR PROMOTION.

73. To pass from the work of the Middle Form, the pupil should be able:

1. To state orally the substance of any lesson in the reader carefully studied and prepared.

2. To write paragraphs correctly from dictation.

3. To combine simple statements into easy connected discourse.

4. To write a letter descriptive in character, clear in thought, and accurate in language and form.

III.—UPPER FORM.

74. The chief aim of the work in this Form should be to secure the ability to speak and write with facility and accuracy upon familiar topics. An indispensable means of securing this result is a critical knowledge of the construction of sentences. This can only be acquired through a persistent application of the principles of etymology and the rules of syntax.

COURSE OF STUDY.

75. 1. Extend the oral work in composition to carefully prepared topical recitations in reading, geography, history and other topics of interest presented in general exercises.

2. Require frequent written exercises upon topics suggested in (1) following the oral presentation of the same topic.

3. Give exercises in forming compound and complex sentences from simple statements relating to the same subject; in separating easy descriptive composition containing compound and complex sentences into simple statements; in expanding simple statements by introducing adjective and adverbial words, phrases and clauses.

4. Review the possessive and plural forms of nouns, forms and uses of pronouns, personal and relative. Teach the specific use of each auxiliary verb, the principal parts of common irregular verbs and their combinations with auxiliaries.

5. Teach some simple system of sentential analysis. Analyze paragraphs in the reader, separating them into sentences, and the sentences into subject, predicate and modifiers. (81.)

6. In connection with the analysis of reading matter, note the rules of syntax which it illustrates.

7. Pupils should persistently apply the rules learned to the correction of their own oral and written work, and in criticising ungrammatical forms of expression.

SUGGESTIONS TO TEACHERS.

76. Success in language work of this Form, so far as it relates to readiness and accuracy in written exercises, must depend very largely upon the skill of the teacher and the thoroughness of the oral work, which should precede the demand for written exercises.

77. The outline of work includes technical grammar, but an exhaustive study of the text-book is not required. The pupil should be taught the essential rules and principles by an examination of the structure of sentences, and by the correct use of forms of words liable to be used incorrectly.

78. In dealing with ungrammatical forms of expression, attention should be fixed upon the language which the pupil uses spontaneously in his own conversation and recitations, rather than upon a collection of stereotyped examples which the pupil might never hear nor see but for their introduction into the language exercises of the school room. The correction of all grammatical errors in the written exercises of the school will give much needed training to those who for any reason cannot or do not study this branch regularly in the course. (79.)

79. The most potent influence in the formation of correct habits in the use of language comes not from study of the rules and definitions of grammar, but from constantly hearing, reading and using good language understandingly; therefore much reading is desirable, and the use of the books furnished to the school through the township library system, is to be encouraged.

80. Carefully prepared written exercises, letters, stories, descriptions of objects and events should be examined by the teacher, errors noted, and when corrected, these exercises or letters, if meritorious, may be read in class or before the school. The writing of bills, notes, orders and other common business papers as directed in 168 will easily include the writing of business letters, such as those ordering repairs for broken farm machinery, to newspapers, making a subscription and selecting a premium. Such work is practical in a high degree and has close relation to the work of the school in arithmetic and geography as well as in grammar.

81. Teachers should be guided to definite, systematic work by the use of standard books on language lessons and grammar.

82. The analysis of sentences need not wait for the study of formal grammar, but should be begun in the Middle Form. The first, most obvious division of a sentence is into two parts, subject and predicate. In each, one word usually is more important than any other, and is sometimes called "the grammatical subject" to distinguish it from the "entire subject." So one word (verb) is usually the most important part of the predicate. The uses of the other words as modifiers of these will be readily seen. If reasonable discretion is used in avoiding disputed questions, and reasonable freedom is used in treating groups of words, for example, "May have been caught," as *units*, the analysis will yield its proper result of showing how words are used to express thought. Some simple system of diagrams may be used as an aid to the expression of the pupils' thought, but not as an end in itself.

[illegible]

53. Pupils will [illegible] should be able

1. To give [illegible] thoughts orally or in writing [illegible] punctuation marks correctly.

2. To use [illegible] thoughts with precision.

3. To construct [illegible] nouns, pronouns, adjectives, [illegible] outline of work.

4. To separate [illegible] tences, and sentences into [illegible] ments, and to apply [illegible]

ARITHMETIC.

I. PRIMARY FORM.

84. The purposes of the work with numbers in the Primary Form are to give the pupils skill in performing the four fundamental operations accurately and rapidly, and to secure neatness and facility in written work.

Results, rather than reasons, are demanded.

COURSE OF STUDY.

85. 1. Oral lessons with objects to teach the smaller numbers and their relations to each other.

2. Reading and writing numbers begun.

3. Teach sums of any two numbers, each less than ten, and the difference between each of these sums and each of the numbers united to form them.

Extended drill on practical problems involving these sums and differences.

4. Teach the Multiplication Table, at least as far as six times ten; also, the quotient of each of the products thus learned divided by each of the factors employed to produce it, using the language of fractions as well as of whole numbers.

Give constant drill on practical problems involving the operations thus far indicated.

5. Teach the names and uses of the signs $+, -, \times, \div, =$, as needed, and have pupils use them in indicating the foregoing operations.

6. Teach such portions of tables of denominate numbers as may be used in the operations indicated in 4.

7. Require pupils to make and solve problems involving two or more of the operations of Addition, Subtraction, Multiplication and Division. Indicate operations and results by signs and symbols. Give much mental work.

SUGGESTIONS TO TEACHERS.

86. Determine, first, what pupils know of numbers.

If pupils are unable to count objects teach them to do so, employing objects of various kinds, such as beans, pegs, dots, flowers, desks, which can be pointed out, grouped and separated. Give much work of this kind on the numbers from one to ten, with many simple practical problems, till these numbers and their relations to each other are thoroughly learned.

87. Teach pupils to make the significant figures from copies on the blackboard and slate. Give drill in associating the number of objects counted, with the figures used to represent them.

88. Proceed in the same way until pupils can readily count any number of things to one hundred and write and read the numbers. **(107.)**

89. In teaching the addition and subtraction tables, do not drill on either table alone, but show that the latter grows out of the former. That is, since 3+5=8, it must be that 8—5=3 and 8—3=5. The first statement comprehends both the others; "Three and what makes eight?" is a fair question on either table.

$$\left.\begin{array}{l} 8=1+7 \\ 8=2+6 \\ 8=3+5 \\ 8=4+4 \end{array}\right\}$$ Gives all possible combinations whose sum is eight.

$$\left.\begin{array}{l} 8-1=7 \\ 8-7=1 \\ 8-2=6 \\ 8-6=2 \\ 8-5=3 \\ 8-3=5 \\ 8-4=4 \end{array}\right\}$$ and Gives all possible subtractions from eight. The pupil who *knows one*, knows the other.

Drill pupils on these sums and differences until each result is thoroughly learned and can be given when called for as an act of the *memory* and not as the result of a computation or counting.

90. The following drill exercises may be profitably employed:

Write in a column, in irregular order, the nine digits; place at the right of the column one of the digits. Point to different figures in the column and require the pupils to name the sum of the number at the right and the one pointed at. By changing the number at the right, drill may be given upon all possible combinations in the foregoing tables. The digits may also be written in a circle, with the odd digit in the center. By similar means drill may be had in stating all possible differences in the foregoing table, by requiring pupils to name the results obtained by subtracting the number at the right from the number pointed at, or from this number increased by ten.

91. As an oral exercise the teacher may name the numbers without pointing and indicate operations as rapidly as pupils can follow: as six, plus eight, minus five, plus one, divided by five, etc., no number involved to be greater than eighteen.

92. In connection with the drill in naming results, give practical, concrete problems involving these combinations and differences. Have pupils make many of these problems and solve them. By this means training is begun in determining simple relations of numbers, and in deciding what operations to perform upon them. Only the simplest analyses and no formal statements should be needed or permitted.

93. In all drill aim to secure results from each member of the class. The poor members of the class need the most drill. The skill of the teacher is shown by securing the greatest amount of individual work with the least loss of time.

94. Pupils should be drilled in naming the *unit-figure*

in any sum: as, 3+9, 2; 4+7, 1; 96+7, 3. Substantially, all our additions are of single digits, hence the infinite importance of fixing the fact that 9 and 5 always give a 4, and so on. So, 17—9=8, and 9 from any number ending in 7, will leave an 8.

95. Practice pupils in adding columns of numbers, and from the sum thus obtained require them to subtract successively numbers placed in other columns, thus:

Find sum of one or more columns under + and subtract from this sum successively the numbers found in columns under —.

—	+	—	+
8	9	7	6
3	4	5	8
6	3	9	3
5	8	4	4
9	5	8	9
4	4	3	5
1	6	6	2
2	7	5	1
7	2	8	9

96. In work on tables lead pupils to see how they are made; in multiplication, by repeating the same number, in division, by repeated subtractions of the same number. Show also that multiplication and division are the converse of each other, and when the product of any two numbers is taught, then teach so much of the Division Table as may be deduced from that product and its two factors.

97. Teach the using and meaning of signs × "times" or "multiplied by," and ÷ "divided by," and require pupils to employ them in writing tables.

98. In teaching tables, teach the product of 1 and each number to and including 10, and the corresponding portion of the Division Table; then the product of 2 and each number to and including 10, and the corresponding portion of Division Table, and so on. When work is begun with the table of 2's, since pupils know the meaning of one half, require them to give one half and two halves of each multiple of 2 to 24. In the same manner, teach one, two and three thirds of all multiples of 3 to 36, when teaching the table of 3's.

99. In dealing with each table, teach all possible forms of statement, e. g.:

2×3=? 3×2=? Three 2's=? Two 3's=? 2 taken 3 times=? 3 taken 2 times=? 6=how many 2's? 6=how many 3's? 2 can be taken from 6 how many times? 3 can be taken from 6 how many times? How many times 2 is 6? How many times 3 is 6? 2 in 6 how many times? 3 in 6 how many times? 6 contains 2 how many times? 6 contains 3 how many times? 6÷2=? 6÷3=? What is ½ of 6? ⅓ of 6? ⅔ of 6? ¼ of 6? ⅖ of 6? ¾ of 6? etc. ½ of 6 and ⅓ of 6? ¼ of 6 less ⅓ of 6=?

100. Before leaving the work with two times three, the teacher should give a variety of concrete problems involving the various operations indicated above. Have pupils make such problems and find results. Proceed in the same way with each combination throughout the tables. Teach in connection with each product any familiar facts in the tables of compound numbers not previously learned. (103, 92.)

101. Practice in adding and subtracting must be continued throughout the entire work of the Primary Form. As fast as tables are learned, pupils may be given practice work in multiplying numbers of several figures by the multipliers whose use has thus been found, and thus extend the work of writing and reading numbers to 1,000. (108.)

102. Roman notation may be readily taught in connection with the numerals used in numbering lessons in the reader, and should not be taught as a part of the work in Arithmetic.

103. Teach only such portions of tables of denominate numbers in this form as are in common, every-day use, and such as can be utilized in the numerical work, as, "three feet make a yard;" but *not* "five and one half yards make a rod." Use the foot rule, pint cup, etc., to secure clear ideas of these and other units.

TESTS FOR PROMOTION.

104. Statements of process to be oral and written.

1. Ability to write, read, add, subtract, multiply and divide simple whole numbers to 1,000, using at least the factors and divisors from 1 to 6 inclusive.

2. A knowledge of the denominate numbers in familiar use which will enable the pupil to make simple reductions within the range of his knowledge of multiplication and division.

3. Ability to perform accurately and rapidly examples and problems involving the fundamental operations.

4. Ability to find fractional parts of numbers as indicated in the course of study, and to use the language of fractions understandingly in dealing with them.

II.—MIDDLE FORM.

105. The purpose of the work with numbers in the Middle Form is to acquire additional skill, knowledge of processes employed in the various subjects considered, and readiness in applying these processes in their proper order. Pupils should also be able to define arithmetical terms used and to make orderly statements of processes employed, that is, give simple rules for doing what they have often done.

Pupils should be systematically trained to determine simple relations and to draw conclusions from them.

COURSE OF STUDY.

106. 1. Reading and writing numbers continued to third period. Law of Decimal Notation developed so far as it relates to whole numbers.

2. Work on the multiplication table continued until the product of any two numbers, to and including twelve, has been learned; also the quotient of each of these products

divided by each of its factors; also the fractional parts of these products, to twelfths. Continued drill on practical problems, as indicated in 85 (4 and 7).

3. Written work by pupils in the fundamental operations, including the use of multipliers of three or more figures and divisors of three figures.

4. Prime and composite numbers to one hundred learned; also factors of composite numbers to one hundred. Drill pupils in finding the G. C. D. and L. C. M. by the use of factors.

5. All the processes in common fractions taught. Constant drill in solving, mentally, examples and problems involving these operations.

6. Application of the law of decimal notation to decimal fractions, addition, subtraction, multiplication and division of decimals; reduction of decimals to common fractions, and the reverse.

7. Continue the work on tables in common use; give practical work only in denominate numbers and in decimal currency.

8. Teach definitions of new terms when they are introduced. Review the work of the Primary Form, and drill the pupils upon it.

SUGGESTIONS TO TEACHERS.

107. In developing the law of Decimal Notation show by means of objects, so far as necessary, the difference between one unit, one ten and one hundred. This may be conveniently done by means of sticks, used singly and in bundles of ten, which may be combined to show hundreds and combinations of units, tens and hundreds. The same may be illustrated by the use of coins, the cent, dime and dollar. The use of objects is solely to make definite the new ideas to be acquired, and should be discontinued as soon as that end is attained and not allowed to interfere with necessary drill.

108. It may assist pupils to write on the board and to

require them to copy on their slates the name of the period and under it the name of the orders and, under the names of the orders, the units in each order of the number, thus:

Units.
Units. Tens. Hundreds.
5 4 3

109. When the law has been developed as far as the third order, the objects may be dispensed with, and the child's imagination be called upon to discover the application of the law to the successive orders. The names of the periods, with names of orders written underneath, as above, may be extended. Pupils should be so trained that on hearing any number read they can tell at once the *number of figures* required to write it. Give much drill in writing and reading numbers and in writing numbers in columns for addition. While this work is not to be confined to numbers of four or five figures, by far the largest part of the work should be put upon such numbers.

110. Continue multiplication and division tables and fractional parts, as outlined in Primary Form and extend the work in fractional parts so as to include numbers not multiples of the divisor. Give questions in two forms: What is one-fourth of 23? and four is in 23 how many times and how many over? Thoroughness in this drill will make short division and fractions much easier than without such practice.

111. With the extension of the work, as above indicated, extend the variety and increase the complexity of the concrete problems. Show how, by combining problems requiring a single operation for their solution, there may be formed a problem requiring for its solution several operations. Reverse the process, showing how a problem requiring several operations for its solution may be separated into several simple problems, each easily solved.

112. Continue work in short division, using divisors to and including 12. Teach the Long Division form. Begin with an example in short division worked in the usu

way: then work the same example by long division, showing pupils that the two forms are simply different expressions of the same operations, one being more full than the other.

113. Give pupils practice in using the long division form with divisors less than thirteen, until they have thoroughly mastered it. Then introduce divisors of two figures, using small numbers until pupils have learned how to find the partial quotients. Gradually make the work more difficult by using larger divisors, and by giving examples in which zeros will occur in the quotient.

114. Since much of the work in fractions requires a knowledge of the factors of numbers to one hundred, pupils should receive a thorough drill in finding and handling these factors, in cancellation, and in determining the G. C. D. and L. C. M. of numbers to one hundred.

115. Write composite numbers, in a column as follows:

10=2, 5
12=2^2,3
14=2, 7
15=3, 5
16=2^4,
18=2, 3^2
20=2^2,5
etc.

Require pupils to write or name the factors in the order of their size, as shown. Teach that the exponent shows that the factor to which it belongs is repeated as many times as there are units in the exponent. In reading or naming factors employ the following form of statement: The factors of 10 are 2 and 5. The factors of 12, two 2's and a 3.

116. Lead pupils to see that a "common divisor" is simply a *factor* that is *common* to two or more numbers, and that the *greatest* common divisor is the product of the *prime* factors that are common to the numbers.

117. Explain that a "multiple" of any number is simply the result of multiplying that number, and hence must contain all the factors of that number; that a multiple of two or more numbers must contain all the factors of each of them; and that the *least* common multiple must contain no factor which omitted would still leave behind it all the factors of each number taken separately.

118. Skill in handling fractions whose denominators are less than thirteen will greatly facilitate subsequent

work in arithmetic, and most of the drill should be on such fractions.

119. Thorough drill should be given on the following exercises (**120** to **128** inclusive); and from the drill exercises rules should be deduced and learned. An analysis of the operation should precede the drill but, when understood, should be dropped and the work confined to securing results. *Keep the drill on small numbers in each case until the operation is thoroughly mastered.*

120. Change fractions to equivalent fractions having greater denominators, e. g., halves to fourths, sixths, eights and so on to hundredths.

121. Reduce fractions to lower, and to lowest terms. Reverse the process and reduce to the fraction with which you started as, reduce one-fourth to sixteenths; then reduce this result to fourths. Continue until pupils can reduce any fraction whose terms are not greater than one hundred. This should be done mentally.

122. Reduce whole and mixed numbers to fractions; reverse the operation.

In all these examples, to teach the method use small numbers, denominators rarely over 12. For subsequent practice and for review work in the fundamental operations, use occasional examples having larger numbers.

123. Within the range of the pupils' powers, give practice in adding and subtracting fractions mentally, aiming to secure results accurately and rapidly. If the work under (**91**) above has been properly done, pupils will have no difficulty in reducing fractions to equivalent fractions having a common denominator.

124. Multiply small fractions by a whole number by multiplying the numerator; also, by dividing the denominator (which of course should be exactly divisible).

125. Divide small fractions by a whole number by dividing the numerator; also when the numerator is not divisible, by multiplying the denominator.

126. Show that to multiply by a fraction involves di-

viding by its denominator (**125**) and multiplying by its numerator (**124**).

127. Show that to divide by a fraction involves dividing by its numerator (**125**) and multiplying by its denominator (**124**).

128. Next show that if the divisor be inverted the proper order of steps will then be as in **126**, and one rule will serve to tell how to perform both operations.

129. While these exercises are intended for mental work in the class, practice with the larger numbers employed should be had by pupils at their seats, slate and pencil being used.

130. Do not deal with the large numbers until pupils can handle the smaller ones easily and readily. Daily drill of a few minutes, vigorously conducted, will accomplish all the work here indicated. Give frequent review exercises. Through all the work practical problems should be given involving the various operations singly and in combination.

131. *Decimal Fractions.* Show what common fractions can be expressed as decimals, and the relation between the number of places in the decimal and the number of ciphers in the denominator of the corresponding common fraction.

132. Drill pupils in stating the number of places required to write decimals of different denominations. Give special attention to writing decimals for addition.

133. Proceed in the following manner to deduce the law for pointing off the product in the multiplication of decimals:

$\frac{3}{10}\times\frac{4}{10}=\frac{12}{100}$, therefore $.3\times.4=.12$.
$\frac{7}{10}\times\frac{21}{100}=\frac{147}{1000}$, therefore $.7\times.21=.147$.

The number of ciphers in the denominator of each of the common fractions used as factors is the same as the number of places in the equivalent decimal. The number of ciphers in the denominator of each product of the common fraction is equal to the number of ciphers in the denomina-

tors of both factors. The number of places in each decimal product is the same as the number of ciphers in the denominator of each fractional product, and, therefore, equal to the number of decimal places in both decimal factors.

134. By reversing the process, deduce the law for pointing off the quotient in division of decimals.

135. *In multiplication of decimals*:

Give examples in which the number of figures in the product shall (a) equal, (b) exceed, (c) be less than the number of decimal places required.

136. Reverse the processes, in the order given, to teach pointing off in division.

137. Drill pupils in reducing mentally decimals of one and of two places to common fractions in their lowest terms. Reverse the process, reducing fractions whose denominators are aliquot parts of one hundred to hundredths and express the result decimally.

138. In teaching compound numbers follow the plan indicated in the text-book in use in the school, but give additional mental drill in reducing, adding, subtracting, multiplying and dividing compound numbers of two denominations. Do not feel obliged to teach all the tables in the books, but teach thoroughly only those tables, and those parts of tables, actually in use. (**54**.)

139. Give pupils practice in reducing mentally units of a given denomination to fractional units of a higher denomination, and in simple cases to decimals of a higher denomination.

140. In all work with compound numbers, deal first with small numbers, and when the processes are thoroughly understood, introduce larger numbers. In case of the pupil's failure to solve examples or problems, where numbers involved are large, substitute for the large numbers smaller ones and lead up to the larger ones. Require pupils to make and solve many original problems. The solution of problems has for its practical outcome the development of the reasoning faculty, and

consequent ability to apply what is learned of numbers to solving the various practical questions arising in daily life. Hence problems should not be treated as if they were mere examples whose only use is to furnish drill in computing.

141. When processes and principles have been mastered, further practice in applying them has no value other than to develop skill. Practice work should therefore be so chosen as to develop the required skill with most dispatch. It will sometimes be found a profitable exercise to solve examples as rapidly as possible without explanation, attending only to correctness of the answers. In other cases, to get practice in reasoning, have pupils tell how problems should be solved, but not do any of the computing—get no answers.

142. In connection with work in decimal currency, teach pupils to write bills, statements of accounts and receipts; to carry out and foot bills, and to find balances due on accounts having debit and credit items. Such examples are always found in the books, and should be utilized.

143. "Mental Arithmetic" has two distinct meanings, as commonly used; the one that of analysis of problems, the other that of solution of examples without the use of pencil. The latter is begun in the first year of the Primary Form (**91**, etc.), and should be continued throughout the course. A few minutes at the beginning of each recitation spent in rapid work on all four fundamental operations will serve to quicken mental activity for the recitation immediately following, and also in the end to secure such perfect familiarity with the numbers under 100 as to save a large amount of time in all numerical computations. Before finishing the Middle Form, pupils should be able to do most of the work under **114** to **128**, mentally and to give results promptly. To multiply or divide numbers of two or three figures by any number under 12 is valuable practice, and will have constant application in all advanced work.

144. The analysis of problems is also begun in the Primary Form, and should be continued whenever problems are used. (**92, 100, 140.**) While no set form of words or formal "analysis" is to be insisted upon, yet a clear statement of the various steps in the solution of a problem should always be had, with enough of the reason for it to show that a pupil knows why he adds or divides. All the various problems in Arithmetic fall into a very few classes subject to general laws, and this fact will gradually lead to the adoption of a simple statement of the essential facts; that is into a formula. When a formula thus grows out of the child's knowledge, instead of being made for him and fed to him, it will prove useful enough to be worth retaining. Whether one buys eggs by the dozen, rents land by the acre, loans money at seven per cent., or buys "stock at .87," he multiplies price by quantity to find the cost.

145. Work of this kind, if not a daily exercise, should certainly be given with small numbers for mental work and to illustrate the principles involved on taking up each new topic.

TESTS FOR PROMOTION.

146. Statement of processes to be oral and written.

1. Ability to deal rapidly and accurately with simple and compound numbers, common and decimal fractions.

2. Ability to solve examples involving easy combinations of the processes named, to apply the processes to transactions of frequent occurrence involving denominate numbers, and to state original problems involving these processes.

3. A knowledge of the factors of numbers to 100, and ability to select and combine factors so as to produce G. C. D. and L. C. M. of the indicated numbers below 100.

4. Ability to define arithmetical terms frequently used; to give an orderly statement of the steps in the processes.

III.—UPPER FORM.

147. The chief purpose of the work with numbers in the Upper Form is to continue the work begun in the lower forms, and so to extend it as to give the pupil skill in performing the ordinary arithmetical computations employed in business life. and at the same time to give such a training in logical thinking as will be of value to the pupil in any subsequent mental work. Much valuable information will be incidentally gained concerning the more common facts of business.

COURSE OF STUDY.

148. 1. Complete the work on Denominate Numbers, including the simplest part of Longitude and Time.

2. Give work in percentage involving:

(a) Reduction of Common Fractions to per cent.

(b) Finding any per cent. of a number.

(c) Finding what per cent. one number is of another.

(d) Finding any number when a certain per cent. of it is given.

3. Profit and Loss, Trade Discount, Commission, Taxes, Simple Interest, including Partial Payments.

Teach the forms and uses of the various kinds of commercial paper in common use. (80.)

4. Ratio and Proportion, Extraction of Roots.

5. Teach such portions of Mensuration of Surfaces and Solids as will be of most practical use.

6. Give constant drill throughout this Form to secure accuracy and rapidity in reaching the results required in the different lines of work.

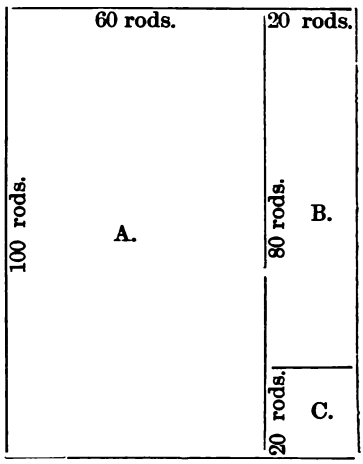
SUGGESTIONS TO TEACHERS.

149. Since the difficulty in "Longitude and Time" is altogether due to the want of knowledge of geography, and and not to the mathematics, teachers should use the globe

freely to make the facts clear. By its use teach the following:

Why time varies with change of longitude. Why it is later east and earlier west of a given meridian than on that meridian. Why a difference of fifteen degrees of longitude causes a difference of one hour of time. Teachers should also be able to make the foregoing clear by means of a circle drawn on the board. Give pupils a definite idea of the terms Standard Time, Eastern Time, etc.

150. A great variety of practical problems may be suggested by such a diagram as the one given in the margin:



Find the number, and the cost at market rates, of the posts required to fence any one, or any two, or all, of these lots. Find the amount and the cost at current rates, of the wire needed, using any number of wires. Find the amount of labor required and its cost.

Find the cost of plowing, harrowing, seeding, reaping any piece. Estimate the value of the product, from any piece, of any common grain, using an average yield, at market price. If the difference between cost and value of a crop is considered as interest at seven per cent., what is the value of this land per acre?

151. Let pupils compute the cost of shingling the school-house, or painting it, or plastering, or laying a new floor, or the amount of brick or stone in the foundations.

152. How much 6-inch flooring will be required to line a bin, including bottom and top, that will hold 400 bushels? How many tons of ice, ten inches thick, can be taken from a 5-acre pond, allowing a loss of 20 per cent. in removing it? (A cubic foot of water weighs 62½ pounds, and the specific gravity of ice is about 93 per cent.)

153. Encourage the pupils to bring practical problems from the farm, store or shop involving mensuration of solids or surfaces. These will have the great merit of being real, hence practical; and there is no guide to the answer except the correctness of the pupil's work. It will be found that the rules of the books for measuring masonry and other products are not always the rules followed by workmen in different localities, and this will have its useful result in correcting any tendency to bookishness in the teacher or the pupil.

154. Much valuable time is worse than wasted, in teaching obsolete tables and units in denominate numbers and those of special not general use. Surveyor's measure is too technical, "pipe" and "tun" belong only to history, "long ton" is explained by the dictionary, Apothecaries' weight is beyond defense, "Averaging Accounts" is out of date, and exchange is no longer in ordinary experience an application of percentage. Teach common measurements and computations effectively, and all the rest will be easily learned when needed.

155. Train pupils in changing fractions to hundredths until they can tell instantly the number of hundredths in any proper fraction whose denominator is an aliquot part of one hundred; also the number of hundredths in proper fractions having the following numbers for denominators: 3, 6, 8, 9, 12, 15, 30, 40, 50, 60.

156. Make a table of the various fractions used in this work, and their equivalents expressed in hundredths and with the sign of per cent., and require pupils to learn it. Fix in pupils' minds the fact that any number of hundredths of a number is the same per cent. of it.

157. Drill pupils in finding various per cents. of numbers easily handled. 1st step. Reduce the per cent. to a common fraction. 2d step. Find the fractional part of the number. Deduce the rule and learn it. Require them to find the same result, by finding that decimal part of the number represented by the rate per cent. Show the equivalence of the two operations, and have the rule for per-

forming the second operation learned. Employ the first way when it can be readily used.

158. In finding what per cent. one number is of another, drill pupils to find, 1st, what fractional part one is of the other; and 2d, to find that part of one hundred per cent. Illustration: 3 is what per cent. of 8. 1st. 3 is what part of 8? Ans., $\frac{3}{8}$. 2d, $\frac{3}{8}$=what per cent.? Ans., $37\frac{1}{2}$ per cent.

Give numerous examples. Show that the foregoing is equivalent to dividing the number expressing the part by the number with which it is compared (as $\frac{3}{8}$ above, may be read 3 divided by 8), carrying the divisions to the hundredths' place.

159. Drill pupils in changing examples in percentage to questions in fractions, and then solve. Illustration: 15 is 40 per cent. of what number? Re-state the question: 15 is $\frac{2}{5}$ of what number? Solve.

Give practice also in analysis without reducing the per cent. to a fraction. Deduce and learn the rule.

Drill also in finding one per cent. of the number; one hundred per cent. of the number; required per cent. of the number.

160. In all the work in percentage thus far outlined, let the constant aim be to secure accuracy and rapidity in reaching results. When pupils understand the analysis and can state it in a given class of work, then drop the analytical statement of steps in the operation, and require results only.

161. Be sure that pupils recognize the fact that this work in percentage is only work in fractions in another form. If the work thus far indicated has been properly done, pupils will have little difficulty with the remaining subjects in percentage which do not involve the element of time.

162. The key to success with questions in Profit and Loss will be found in the fact that the per cent. of gain or loss is always reckoned on the *cost* of articles.

163. A commission for selling is reckoned on the selling price, and for buying on the buying price.

haps in the case of stocks). These are the simple cases and cover the vast majority of business transactions of this class. A less common but more troublesome case is that in which a given sum of money includes the cost and the commission. In this case the cost is 100 per cent. of the cost, the commission is, say, 3 per cent. of the cost, hence the whole amount is 103 per cent of the cost. Such examples are less common in the business world than in the text-books.

164. In all these cases, as in Insurance, Taxes, Trade Discount, the difficulties pupils have do not grow out of the inherent difficulty of the subject, but are due to ignorance of business facts, terms and usages. Success is to be found only in making these clear and in applying the simple principles of percentage given above (**157, 158, 159**), but never in learning separate rules for each case.

165. In Simple Interest, teach thoroughly one simple, practical way of computing interest and a simple method of finding what sum of money at a given rate for a given time will produce a given sum.

166. Teach the U. S. and the mercantile rules for finding the amount due on a note on which payments have been made.

167. "Bank Discount" is nothing but simple interest collected in advance. Banks do not always collect interest in advance so the distinction is of little value.

168. Teach pupils the use and form of notes, bills, receipts, orders, drafts, and other classes of commercial paper in most common use.

169. Require analysis of problems before requiring their statement by proportion. Have pupils give analysis in the form of questions and answers. Illustration:

If 5 horses eat 10 bushels of oats in 20 days, how many bushels will seven horses eat in 13 days?

1st Question.—If 5 horses eat 10 bushels of oats in 20 days, how many bushels will one horse eat in 20 days? **Answer,** 2 bushels.

2nd Question.—If one horse eats 2 bushels of oats in 20

days, what part of a bushel will he eat in one day? Answer, $\frac{1}{10}$ bushel.

3rd Question.—If one horse eats $\frac{1}{10}$ of a bushel of oats in one day, what part of a bushel will 7 horses eat in one day? Answer $\frac{7}{10}$ bushels.

4th Question.—If 7 horses eat $\frac{7}{10}$ of a bushel of oats in 1 day, how many bushels will seven horses eat in 13 days? Answer $9\frac{1}{10}$ bushels.

Each question should be so complete in its statement of conditions that a person having heard none of the preceding work could readily solve it.

The following analysis may be used if preferred: If 5 horses eat a certain quantity of oats, 7 horses would eat more oats, that is $\frac{7}{5}$ as much. Hence $10\times\frac{7}{5}$. If some horses eat a quantity of oats in 20 days, in 13 days they would eat less, or $\frac{13}{20}$ as much. Hence, 10 multiplied by $\frac{7}{5}$ on account of the number of horses considered, and by $\frac{13}{20}$ on account of the number of days considered, must be the result sought: $10\times\frac{7}{5}\times\frac{13}{20}=9\frac{1}{10}$.

170. The work in factoring outlined in the Middle Form may be used to make the work of extracting any root comparatively easy. If any number be resolved into its prime factors, and these factors separated into two equal groups, the product of either group is the square root of the number. The cube root is the product of one of three equal sets.

If a number of four or five figures cannot be readily factored, we may guess at its root, multiply this by itself and, if the result is too large, try a smaller number; thus by two or three approximations, we may reach a result sufficiently accurate for all practical purposes. If the number is 4674, it is clear the first figure of the root is 6, and the number is almost large enough to make 7 right; hence try, say 67. $67\times67=4489$, showing the supposed root too small, $69\times69=4761$, too large, but nearer the right number, $68.4\times68.4=4678.56$; still a trifle too large. By this method the least possible amount of theory or analysis is used,

but at the expense of longer computations. Its merits are simplicity, and the certainty that it will be remembered, notwithstanding the occasions for using square and cube roots are for the majority of people exceedingly rare.

If the far more interesting and elaborate methods of the text-books are preferred, it should be borne in mind that the end sought is not "practical utility," as commonly understood, but mental discipline. Hence, to justify such a use of time, special care must be taken to master the theory as well as the process.

171. Several subjects ordinarily treated in text-books have been omitted from this course of study. It is believed that the work described in this manual is enough for a practical course in arithmetic in the common schools, and it should be first mastered. Then, if time permits, the omitted work may be taken up. For pupils who have spent seven to nine years in school, a partial knowledge of parts of the theory of numbers is but a poor compensation if they have not obtained the power to use numbers easily and accurately in the affairs of daily life.

TESTS FOR GRADUATION.

172. 1. Ability to analyze problems involving applications of Percentage indicated in the course of study, problems in proportion, and in Mensuration of Surfaces and Solids where geometrical formulas are not employed. This analysis should show a logical train of thought properly expressed.

2. Ability to indicate by arithmetical symbols the operations necessary to the solution of problems in the classes mentioned above.

3. Ability to extract square and cube roots by some one method and to give an explanation of the process used.

4. Ability to state original practical problems of the various classes indicated in 1, and to solve them.

5. Skill in writing the various kinds of business forms in common use, and in performing by short methods the computations required in ordinary business transactions.

6. Ability to define arithmetical terms used, and to state rules for performing operations.

7. Accuracy and rapidity in performing the work required above are essential requisites for completion of the work of this Form.

GEOGRAPHY.

I.—PRIMARY AND MIDDLE FORMS.

COURSE OF STUDY.

173. 1. *Oral lessons on objects which pupils have seen or may see near home:*

(a) *Land* — hill, wood and prairie; *water* — brook, pond and lake. (**175, 176.**)

(b) *Soils* — gravel, loam, sand and clay; *rocks* — lime, sand, slate and granite.

(c) *Plants* — wild and cultivated, including different kinds of trees. (**176.**)

(d) *Animals* — wild and tame; their uses and habits.

(e) *Men* — their occupations, tools and productions.

2. *Elements of commercial geography:*

(a) *Exchanges* — by barter and by use of money.

(b) *Means of communication* — roads and rivers.

3. *Exercises on location*, to develop clear ideas of position, direction, distance and area.

4. *Uses and construction of maps;* what maps tell without words.

5. *Elementary lessons on the globe;* a few simple facts of latitude and longitude.

6. Each of the grand divisions with map and text book.

7. Map drawing.

SUGGESTIONS TO TEACHERS.

174. The purposes of this work are to train the perceptive faculty, and to prepare the pupils by examining objects within easy reach to form mental pictures of things described in their text-books. The children are acquiring through perception a knowledge of the world around them that will enable them by and by to pass from the seen to the unseen.

175. Go with the class to the hill, or brook, or whatever is to be the subject of the lesson, and there in the presence of the things themselves compel thoughtful observation by the questions asked. Is the top of the hill flat or rounded? How many slopes has it? Are they long or short? Are they steep or gentle? Does water stand on the hill-top? (Teach "water parting" or "divide.") In what direction does the water flow after leaving the hill? Is the water in the gutters after a rain clear? Rain drops are clear. Where does the mud come from? The brook runs into the lake. Is that clear? Where has the mud gone? Do the large or the small particles fall first? Look at the earth washed out of a gully at the foot of a hill. Is the brook straight or crooked? Are the banks steep? Are they the same on both sides of a bend? Does the current set against either bank? Where? Are there rapids? What soil is in the valley? What on a hill top? Notice strata of soil exposed in the gully. If the schoolhouse is not so situated as to make it easy to visit a stream, it will be well to remember that rivers, rapids, waterfalls and deltas may be found by every country roadside after a shower.

176. The plan indicated here may be followed in the study of plants, animals and men. No attempt has been made to more than indicate a few of the numberless questions that may be readily and intelligently answered by small pupils. When they have returned from these visits there will be no lack of material for language lessons.

The work on plants and animals is the same in geography as in "Nature Lessons."

177. Care must be taken to confine instruction under topic 2 to transactions familiar to pupils, and relating to matters embraced in topic 1. Where is the grain from the farm sold? How does it reach the market? What is done with the grain after it is sold? What does the farmer buy? Where was his plow made? Does the plow maker want anything from the farmer?

178. In 3 and 4 the main purpose is *to teach map language.* The child's first map is to him not a means of *getting* knowledge, but a means of *expressing* ideas which have been gained by observation. With whatever help is necessary from the teacher, the pupils are to draw maps of the school-room and grounds, and of other well-known localities in the vicinity, as the roads and farms near by, with the position of buildings and other prominent objects indicated. These maps must not be drawn by guess but, after the first few very simple ones, on a definite scale, *after actual measurements have been made.* The same locality should be drawn on several different scales.

179. The purpose of this mapping of the school yard and of the child's home, is to teach the construction, and hence the use, of maps. The proper limit of the work is the child's own observation. The next town or county is to the child a foreign land, and he can only make a map of it by copying. The attempt therefore to build all geographical knowledge around the home center is not wise. Hence pass to the globe and map of the hemisphere, or of the United States.

180. Show that by means of the scale, we may know from the map, distances and areas; that the size of the map gives no idea of the size of the country till we have the scale; hence we often underestimate the size of foreign countries, compared with our own. Show that the scale makes the chief difference between a map and a picture.

181. Great care must now be taken to give the pupil

some adequate notion of the vast size of the earth as compared with the part of it which he has seen. The following is one good way to aid the young mind in making this transition:

The children know where a few neighboring schoolhouses are. How long would it take to go to that one or the next one? Tell them the number in the county. How many weeks would it take to visit each for one day? (The mind uses *time* as a measure of *distance*.) They now feel that the *county* is a very large area. But there are seventy counties in Wisconsin, and see how small it appears on the globe. With a fine point, draw the outline of the county on the globe, and cover it with a pin head. The pin point will about cover the school district.

182. Actual position on the globe and relative size and distances are much better studied from globes than from maps, and both should be kept in sight of the geography classes, and be used daily.

183. Teach the meaning of Latitude and Longitude and show their necessity to locate position on the globe. Do not attempt more than to explain the appearance of these lines on globes and maps, and their use.

184. The pupil may often have heard and said, "The world is round," but even if he faintly realizes the truth, he feels that he is on the upper side. He is not merely to say, but, in imagination, is to see that the earth is round. Impress correct notions of *up* and *down*. Show that the revolution of the earth makes the sun seem to set, and that moon and stars "rise and set" in the same way. Interest the class in noting the position of the "big dipper" and other stars at different hours of the same evening.

185. To see the effect of the annual motion of the earth, as shown in the earlier setting of the stars in successive weeks requires more time and persistence, and may therefore be left to the Upper Form.

186. Place an ordinary outline wall map before the pupils and lead them to discover what may be read from it.

Which is the highest and which is the lowest part of the

region? In which hemisphere is it? In what direction do the rivers flow? Are they probably slow or rapid? Can they be navigated? How far is it from one specific place to another? What part has the coldest climate? Bound some region. Where are the largest cities? Where would we expect to find farming lands? Would commerce be an occupation of the people in any part of the region represented?

Work similar to this may be done with each new map-lesson. The child's first map was to him a means of *expressing* knowledge, but now he is to use maps as a means of *getting* knowledge. (178.)

187. The disciplinary purpose of exercises like the foregoing is not memory training. The questions should be of such character and they should proceed in such sequence as to cultivate the powers of observation and reasoning. The practical purpose in view is to enable the pupils to read a map. When they do not readily answer they should have time and opportunity to study out conclusions of their own.

188. In the treatment of topic 3, (173) the aim is to expand the ideas already possessed, and thus give adequate notions of the absent and unseen. The power to see things "in the mind's eye" is to be trained. The child should be able to translate map forms into the realities which they represent, and to conceive of different portions of the earth as they appear. A river must not be to him merely a crooked line on a page; a town must be more than a spot of printer's ink. To this end use pictures freely, also vivid descriptions of scenery and modes of life in other countries. For this purpose use the books of travel in the district or town library, railroad guides (illustrated) and interesting articles in reliable newspapers.

189. Physical features should receive considerable attention. Continental resemblances and contrasts, indentations, projections, islands, chief mountain ranges, rivers and lakes, plains and plateaux, arid and arable regions, etc., should be noted. The scope of the work presented

under 3 should be about the same as that found in the "Elementary," "Primary" or first book of the two-book series.

190. There is some danger that in the use of any of our school geographies, too much will be attempted with the memory, and too little done for the imagination. There are more names of cities and rivers on the poorest maps than any class should be asked to memorize "for life," while the excellent pictures of characteristic scenes, of great bridges, harbors, canals and locks, of mountains and valleys, with which our best books abound, are too often neglected.

Besides the illustrations of the text, the illustrated newspapers and magazines, even in their advertising pages, furnish a vast amount of valuable material at nominal cost. Railroads and hotels find it profitable to advertise in freely distributed books and circulars filled with pictures, often artistic as well as accurate. Photographs of the most noted scenery and buildings of the world are obtainable, and add greatly to the interest in the work. No teacher of geography can afford to neglect this abundant material.

191. Where London and Gibraltar are is of interest and value to us because of what they are. It is worth while to know that New York is on the Hudson river because of the relation of the river to the city. Try to give some notion of the foreign commerce, and the sights of the harbor, of the great factories and busy wharves, the crowded streets and lofty buildings. (See 4, **194**; also **201**, 4.)

192. Map drawing is taught, not as an end in itself, but to impress on the mind the forms of the divisions; minute accuracy is not aimed at in drawing maps. Skeleton maps of the state and grand divisions may be had at small cost, which pupils may fill in as they advance.

TESTS FOR PROMOTION.

193. A pupil is ready to enter upon the work of the Upper Form when he has:

1. A fair comprehension of the most manifest characteristics and uses of common plants and animals found in the vicinity, of the occupations of the people whom he knows, their tools, how and why they work, travel and exchange their products.

2. An idea of the earth as a globe, the fact and effect of its rotation, and the meaning of latitude and longitude.

3. A knowledge of the shape and relative size and position of the continents, oceans and most important countries.

4. A good knowledge of the meaning of maps, their scale, how to find directions, and how to determine slopes, drainage areas, etc.

5. Clear mental pictures of characteristic scenes in the most important parts of the world.

6. Ability to draw outlines of the continents, and to indicate therein the boundaries of the countries and the location of places which have been studied up to this time.

III.—UPPER FORM.

COURSE OF STUDY.

194. *A systematic course of tracing and sketching lessons to teach—*

(a) *Physical features:* (1) Drainage — river systems, slopes and water sheds. (2) Climatic factors—heat and moisture, and how these are determined by latitude, altitude, air and water currents, and position of mountains. Position as near or remote from the sea. (3) Distribution and variation of animals, plants and men. (4) Places noted as natural wonders, or for beauty or grandeur of scenery, located and described,

(b) *Commercial, political and historical facts:* (1) Productions and industries. (2) Location and description of important commercial cities, with causes for commerce centering there. (3) Capitals located, and a few forms of government and religion described.

(4) Places of historic renown, especially in our own country, associated with events which occurred there. (See History, (278, 279.)

195. *Mathematical Geography:*

(a) Accurate definition of mathematical terms employed.

(b) Properties of the sphere at rest and rotating.

(c) Proofs of the spherical form of the earth (not less than six.)

(d) Causes of day and night, changes of seasons, and the division of the earth into zones.

(e) Railroad "standard" time.

(f) Survey of United States public lands.

196. *General Review.*

(a) Any parts of the foregoing course in which the class may be found weak.

(b) Summarize and distinguish between the facts learned under the usual divisions of geography: descriptive, political, physical, mathematical, commercial.

(c) A few important routes of commerce and travel.

(d) Correlations of the facts learned which pertain to physical geography, and a fuller treatment of a few of the more important topics under this head.

SUGGESTIONS TO TEACHERS.

197. *The natural method* of studying geography is by what may be called tracing lessons. By tracing lessons is not meant the copying of maps by superimposing transparent paper and tracing the lines, a practice which has very little to commend it as a school exercise. For want of a more convenient name, the term is here used to designate the method of teaching by which geographical facts of location, drainage, etc., are held in mind, not as iso-

lated fragments of knowledge, but as facts bound together by referring them to the unity and continuity of the coast line and natural waterways. The pupil may imagine himself in a boat, following the shore and ascending the rivers to their sources. He thus "explores" the country and tells what he finds. The method is essentially synthetic. When a portion has been thus built up, it is to be "sketched," or represented on the board or on paper, and the artificial boundaries inserted. To illustrate: A tracing lesson on the east coast of the United States, might include St. Croix River, Mt. Desert Island, Penobscot Bay, Penobscot River, Bangor, Kennebec River, Augusta, Moosehead Lake and Portland. When this is recited, pupils indicate by sketching * the coast line, the rivers, and other places named, also the boundaries of Maine. The next day the journey is continued along the coast and up the rivers. In oral review, places are named in order, beginning at any point and going in either direction. Outline wall maps should be freely used; if you do not have them, make them by drawing very accurately, or by the use of stencil plates sold by dealers in school supplies.

198. The sub-topics (a), (**194**) are not to be taken up *seriatim* but simultaneously. This outline of topics is intended as a guide to the teacher in determining *what* places and facts to assign in the tracing lessons. In tracing the Atlantic Slope, why locate the White Mountains? Merrimac River? Albany? Philadelphia? Yorktown? Natural Bridge? Charlestown? The outline will suggest why.

199. Physical geography is not studied as a separate branch; the important elements of physical geography can be taught from the ordinary school text-book, supplemented by such oral exercises as the teacher should give, and should be learned *in connection* with the lessons on location.

* By sketching is meant drawing with pencil or crayon *from memory* the map forms learned. This should be an almost daily exercise; the purpose is not the development of artistic skill in the making of beautiful drawings, nor is minute accuracy of detail expected; but neatness and general correctness should be insisted upon.

When the tracing is done as above indicated, the *drainage* is learned incidentally. Then teach climate and productions, not by states or countries, but by *natural areas*.

200. Observation of the actual earth sculpture in any locality leads pupils to the reason of geographic forms; and it should be assiduously followed, not only as a beginning in geography but through the entire work. By means of it pupils get true, vivid ideas of hills, valleys, river systems, river basins, lake basins, plains, plateaux, features of coast lines, deltas, mountain passes, canons, natural bridges, etc,

201. In teaching by this method the two great dangers are: first, that too much will be attempted, and therefore little really accomplished; and, second, that the work will degenerate into lifeless routine, the mere fixing of map forms and learning of names. Avoid the first by strictly observing these rules:

1. Carefully determine beforehand, each day, what work you will assign.

2. Assign only these places about which you know something besides their location. (**279.**)

3. Require only such places and facts to be learned as seem to you so important that the pupils should know them "not for school, but for life."

4. Cultivate independence of the text-book so that you can assign lessons and conduct recitations without consulting it.

To avoid the second danger, enliven the exercises by vivid descriptions drawn from your own and the pupil's general reading. The descriptive text is usually too brief to arouse much enthusiasm. Occasionally stop the tracing lessons for a few days to "read up" from all sources within reach about some interesting place, or the customs of a people. Pupils may also take imaginary journeys by rail and by water, and describe the cities and scenery passed, as from Boston to Denver, via St. Louis.

202. When Wisconsin has been reached in the tracing, *via* the St. Lawrence and the Mississippi basins, a care-

fully executed map of the state may be made by each member of the class. It should be drawn with ink, and, as this is the work of an advanced class, it should be accurate, neat and artistic. By the use of skeleton maps of the continent, of the United States and of this state, many maps of areas of production of certain staples may be made at slight cost, and at a great saving of time.

203. Every school may have a railroad map of Wisconsin, free of cost, by applying to the county superintendent, and it should be studied with reference to **194** (b) and **196** (c) of the outline. Note only the most important through lines. Pupils should know the route to their nearest large large city, to the capital and to the metropolis. Keep this map always in sight.

204. In teaching "productions and industries," show how the first are determined by (a), and the second by (a) and (b) **194**. Make a collection of such natural or manufactured products as can be obtained to use in connection with the study of each section. Explain as far as possible the processes pursued in the various industries; how the iron ore of Hurley and Iron Ridge becomes the iron of commerce, the pine trees of Chippewa county the doors and sash for a Kansas house, and how many different occupations are concerned. More time should be given to the study of Europe and North America than to the other continents. When Europe and North America have been studied in a series of tracing and sketching lessons carefully planned and conducted according to the rules given above (**201**), the study of the other continents may proceed with much less attention to details.

205. The area of Wisconsin, and the population of Wisconsin, Milwaukee, and your own town will be found convenient units of comparison, and should therefore be memorized.

206. Section **195** is purposely placed near the end of the course. This subject is usually introduced too early. To master it, the mind must be able to conceive of form apart from matter; and this requires the exercise of pow-

ers not developed in childhood. To memorize definitions before the mind is mature enough to grasp the ideas of *things* defined is a wasteful expenditure of time and energy.

207. In order that nothing shall afterward need to be unlearned, teach *exact* definitions of mathematical terms. The terms of which clear ideas of the meaning and accurate definitions must be had are *point, line, surface, solid, straight line, curved line, plane, angle, section of a solid, sphere, circle, circumference, diameter, radius, great circle* and *small circle.* From a rotating sphere develop the ideas expressed by *axis, poles, equator, parallels, and meridians.* Teach that circles are planes, not lines, and pass through spheres, not around them. (The foregoing should be developed *without any reference to the earth.*)

208. In connection with the sub-topic (c), (**195**) teach also three or four proofs that the earth is flattened at the poles. Lead pupils to show by calculation that mountains roughen the surface no more than grains of sand on a ten inch globe; and let them show how much the same globe would need to be flattened to represent the earth in true proportion.

209. The fundamental facts in the next sub-topic (d) are the earth's rotation, revolution, and axial inclination. After this subject has been treated, if the work has been carefully done, many questions like the following may be asked. *Where* are the days and nights *always* equal, and *when everywhere* equal? Why? What is the day circle? Under what conditions would there be no alteration of day and night? In the year 1888, the earth rotated 367 times. Why? One reason why Dakota is a better wheat region than the "Sunny South" is because in the former the growing crop receives much more sunlight than in the latter. Why? What change would bring the tropic of Cancer through your home? How wide would the temperate zones then be? Are the zones natural or artificial divisions? What would cause the frigid and torrid zones to overlap? What would be the effect on day and night and on the seasons if the axis were perpendicular to the ecliptic? etc.

Let the pupil determine by these means how and when he could reach certain points by railroad. Many incidental facts will come up in connection with such an exercise which the ingenious teacher may turn to good account.

215. The last sub-topic (d) assumes a knowledge of physical geography on the part of the teacher. The physical phenomena studied during the course should now be gathered and presented as a systematic body of knowledge; and, in addition, such topics as the theory and effects of ocean currents and winds, general distribution of rainfall etc., should be presented.

TESTS FOR GRADUATION.

216. When the course has been completed an examination should demonstrate the pupil's ability:

1. To read maps readily.
2. To sketch in outline each of the continents, and to state, approximately, their relative size, using Wisconsin and the United States as units of measure.
3. To give the system of water-partings and drainage slopes of each continent.
4. To locate and tell something about any land or water form, city, or other point of interest included in the course of tracing lessons. [See rules 2, 3 and 4, **201**.]
5. To describe important areas of production, especially those of our own country.
6. To draw from memory, and with a fair degree of accuracy as to detail, a map of Wisconsin.
7. To comprehend clearly the system of reckoning standard time; also the method of surveying public lands, with its practical applications.
8. To show by means of diagrams or drawings the course of constant and of periodic winds and of ocean currents, and to explain the causes and effects of the same.

SPELLING.

I.—PRIMARY FORM.

217. The first steps are in connection with reading. Oral spelling with the word in sight, and copying words on slates from blackboard, chart and reader. After the first year oral and written spelling of words dictated from the reader.

218. Frequent oral and written reviews of the more important and difficult words learned.

219. The pupils should be able to spell, both orally and in writing, all the words of the Second Reader. In order that common words may not be neglected, the pupils should occasionally be required to write sentences dictated from the reader and from books of like grade.

II.—MIDDLE FORM.

220. Pupils should be drilled in the oral and written spelling of the words found in the Third Reader, and in all other text-books used by the pupil. (224.) Use a spelling-book and follow the methods therein outlined. Spell the new words used in all other recitations. Make much use of dictation exercises, and exercises with lists of words of different kinds;—as, verbs derived from nouns; terms used in arithmetic or other branches; synonyms, abbreviations. Careful training *now* will make the pupil a good speller. It will be so much more difficult to do it later, that in all probability it will never be well done. Difficult words must be brought up again and again, until

the pupil forms the *habit* of spelling them correctly whenever he uses them in compositions or written examinations.

Make lists of the words frequently missed and drill frequently on those words.

221. Whenever the pupil spells, look closely to his writing; whenever he writes, insist on good spelling.

222. In oral spelling the child should be required to syllabicate and pronounce the words for the aid it gives to reading and pronunciation. In spite of all the defects of our alphabet, pronunciation and spelling are mutually helpful. The old-fashioned way of mastering a word syllable by syllable should not be allowed to become one of the lost arts. (**21.**)

TESTS FOR PROMOTION.

223. Habitual good spelling in everything written by the pupil, especially in examinations, where his mind is centered more upon the thought than upon the spelling of the word he is using.

III.—UPPER FORM.

COURSE OF STUDY.

224. Continue the practice of spelling the words met in all text-books, and in supplementary reading. The best time to learn to spell a word is when we first meet it. We thus form a *habit* of noting new words carefully.

225. Master the spelling book, including two or three rules of spelling, as the following:

a. Monosyllables and words accented on the last syllable ending in a single consonant preceded by a single vowel double the consonant on taking a suffix beginning with a vowel.

b. Final silent *e* is omitted before a suffix beginning with a vowel except when necessary to retain the soft sound of *c* or *g*.

200 times a minute. This should be practiced from right to left and from left to right, until perfect freedom of movement is secured, the hand moving around many times in the same circuit.

233. With the same movement practice upon the capital O, made with three quick strokes (down, up, down) at the rate of 60 to 80 a minute.

234. At the same rate, keeping up the fore-arm movement, and avoiding all use of the fingers except to hold the pen, make the simplest form of the capital P. Afterward capital B, and then the easy capitals.

235. Practice upon the small letter n, in the same manner as directed in case of the capitals. Follow with other small letters, the easier ones first, as m, i, u, combining them as soon as possible into simple words.

236. Follow the small letters with l, then h, j, g, and the other extended letters.

237. With proper movement and high speed, practice special exercises a few minutes daily until perfect freedom of movement is secured and correct form attained.

238. Practice upon easy words beginning with capitals, then with verses of poetry, mottoes, etc., care being taken to so grade the work that not many difficulties will be presented in one lesson.

SUGGESTIONS TO TEACHERS.

239. The four things to be considered in every exercise in writing are *position, form, movement, speed.* A good position enables the pupil to use the muscles easily. To secure this he should sit erect, near to the desk but without leaning upon it, face it directly when convenient, otherwise turn the right side slightly towards it, rest the forearm upon it, and set the feet squarely upon the floor.

240. The idea of good *form* is developed by inspection of good writing done by the teacher, and from examination of charts and engraved letters. Some analyses of letters will prove helpful, but a careful inspection of let-

ters in their entirety will be more valuable. It should be remembered that one's ideas of form are usually far in advance of his *ability to execute.*

241. A good *movement* is of the utmost importance, as one acquires through it the ability to write rapidly for hours with little fatigue. The best movement for all school purposes is fully explained in **231**. The pen should be held lightly between the thumb and first and second fingers. The finger movement makes the writing cramped. The whole-arm movement may be used only in exercise for practice to secure freedom and skill in execution.

242. *Speed* is exceedingly desirable. The writer who can turn off a large amount of correspondence in a given time is the one whose services are in demand. Many persons look upon writing as drudgery, because emphasis has been laid upon form at the expense of legibility and rapidity. It is a misdirected effort to spend upon six lines in a copybook time enough to write well two pages of legal cap.

243. In the primary grades paper and long medium-soft lead pencils should be used until the movement is thoroughly acquired.

The pupils should be taught how to keep their pencils and pens in order. They should be required to get blotters, pen wipers, and clean, smooth paper, and to use for practice purposes, plenty of foolscap or letter paper of good quality.

Require neatness, but do not allow the pupils to draw the letters to secure that result. Show that legibility depends upon correct forms of letters, uniformity in height, slant, spacing. Teach pupils to practice self-criticism by comparison of their own work with the standard.

During the writing exercise, the teacher must give his whole attention to it, and should make it pleasant to the pupils. General directions may be given to the class, but much of the teacher's help must be given to the pupils as individuals.

244. Writing of business forms, such as notes, checks, drafts, receipts and bills will furnish agreeable variety and suitable matter for the practice work of middle and upper form pupils. Proper forms of business and social correspondence may also be taught. (**168, 68.**)

245. Teachers should write well but whether they write well or not, should *use the board* in teaching writing.

246. The test of a good writer is the ability to produce readable manuscript readily.

247. As writing consists in producing certain forms conceived by the mind, it follows that putting letters into rectangular spaces, tracing what others have written, running the pencil in grooves and kindred devices are of little use in teaching writing.

THE TEST FOR GRADUATION.

248. The ability to write legibly, neatly, and in good form, within three minutes, two stanzas from Longfellow's poem, "A Psalm of Life," or an equivalent selection not previously written.

PHYSIOLOGY AND HYGIENE.

249. As the law of the state now requires "for all pupils in all schools supported by public money, or under state control," instruction in physiology and hygiene, "with special reference to the effects of stimulants and narcotics upon the human system," it will be necessary to teach this subject to some extent in the lower forms as well as in the Upper Form. For the lower forms the instruction should be oral, quite elementary, and based on the texts approved by the state authorities for use in the schools.

250. In the Upper Form rigid classification and daily recitation will not be necessary, though the study of an approved text may be desirable.

251. The following scheme may be used for a general outline of the work to be attempted. No division of the work in the two lower forms is prescribed, but each teacher will adapt the instruction either to classes, or to the entire school, through general exercises, as circumstances may require or admit.

I.—II.—PRIMARY AND MIDDLE FORMS.

COURSE OF STUDY.

252. THE BONES.

1. The skeleton and its principal divisions. How it is held together. The nature of bony tissue. (**262**, **263**.)

2. The general function of the bones. The particular function of each of the larger groups of bones.

3. Some things that children should avoid to prevent

malformation of the bones, and to protect them from accident; as, undue pressure from clothing, bad positions of the body, and dangerous games.

253. THE MUSCLES.

1. A glance at the muscular system. The nature of muscular tissue and its attachments. (262.)

2. The function of the muscles stated. The work of some important muscles shown by way of illustration.

3. How they are affected by pressure and unnatural position. The kind and amount of exercise that they need. How they are affected by alcoholic stimulants.

254. THE NERVES.

1. A brief general study of the nervous system, including the nerves and chief nerve centers. The nature of nerve tissue.

2. The chief office of the nervous system. Some of its special offices.

How the nerves are affected by fatigue of the body; by overworking the mind; by cheerfulness, or a lack of it. The necessity of regular and sufficient sleep and of exercise. How alcoholic liquors, tobacco, and other stimulants and narcotics injure the nerves and through these disturb the functions of other organs.

254. THE SKIN.

1 Structure of the skin. The hair and nails.

2 The functions of the skin.

3 Necessity of frequent bathing; kinds of baths. Quality, style and change of clothing, to keep not only the skin but other parts of the body healthy.

255. DIGESTION.

1 The organs of digestion briefly described.

2. The work of each of these organs.

3. Good habits of eating; some bad but common habits of eating. The effect of bad foods and stimulants upon the organs and upon the process of digeston. When to take exercise. The kinds of food needed by the body, and the purposes for which they are requried. Care of the teeth.

257. BREATHING.

1. The structure of the lungs.
2. The function of the lungs and how they perform it.
3. Proper habit of breathing. Keeping the lungs free from pressure. The effects of bad air. Need of good air. How to keep the air pure in and about our houses. Helpful breathing exercises. (**264.**)

258. THE CIRCULATION.

1. The heart, arteries, veins and blood.
2. The office of the blood. Its relation to digestion and breathing. The manner of its circulation.
3. How the quality of clothing and the manner in which it is worn affect the circulation. How alcohol and narcotics impoverish the blood, make it impure and retard the circulation. Danger of blood poisoning in various ways. The good and bad effects of exercise.

259. THE SENSES.

1. The special organs of sense. The eye and ear studied as particularly important.
2. Functions of the different organs of sense.
3. How to care for the eye and ear.

SUGGESTIONS TO TEACHERS.

260. Avoid excessive detail. The technical terms found essential will not be difficult to teach. The inexperienced teacher should examine one or more of the best physi

ology primers in the market to determine how much is meant to be taught under each head of the *Course of Study.*

261. Use charts, drawings and such pictures as are available. The blackboards and the tablets of the pupils should be used frequently for sketching and for the drawing of diagrams. There should be a constant effort to have the pupils express graphically what they see.

262. The teacher should frequently perform experiments before the class. There are many simple ones in which the materials are inexpensive. For examples, the extraction of lime from a bone by acid; the destruction of cartilage by fire; the necessity of air to the burning candle.

263. Sections of bone showing the tendonous attachments of the muscles are easily obtained. The wing or leg of a chicken will teach the lesson as forcibly as the most expensive model.

264. The teacher's own earnest endeavor to inculcate good bodily habits and his watchfulness over the heating, lighting, ventilation and cleanliness of the schoolhouse and its buildings will most strongly emphasize the study.

TESTS FOR PROMOTION.

265. The pupil should be able to give the general structure of the principal organs of the body, their chief functions and the well-established laws of health with intelligent reasons for following them.

III.—UPPER FORM.

COURSE OF STUDY.

266. 1. The amount of work required in this grade is sufficiently indicated in the approved text-books.* It may be said, however, that in the main it should be simply a wise enlargement of the topics already discussed in the Middle Form.

2. For obvious reasons emphasis should now be placed on the injurious effects of narcotics, alcoholic drinks, and other stimulants: but do not reverse the order indicated in the statute and attempt to teach narcotics and stimulants with some reference to physiology and hygiene. The instruction should be scientific rather than dogmatic, and not of a character so extreme as to breed distrust of both teacher and text.

3. That part of hygiene relating to accidents which often befall both young and old, should receive the careful treatment necessary to make it permanently useful.

SUGGESTIONS TO TEACHERS.

267. Too much stress should not be placed on details, and experimental methods should hold a large place. In respect to the latter it may be safely asserted that the further the subject is removed from mere abstract statement, and the more nearly it becomes a matter of observation, the better.

268. By a little effort before the day of recitation, simple apparatus may be provided with the assistance of the older pupils. It is commonly possible to obtain a heart, or lungs, or a joint or whatever may be the subject of instruction. A comparison of a section of an artery from a large ani-

* *Martin's Human Body. Elementary Course* (Henry Holt & Co., New York), is well adapted to the work of this form.

mal with the flabby walls of a vein from the same subject will give clearer ideas than a text possibly can give.

269. Requiring pupils to memorize the matter of a text-book, and especially its tabular statements, is the most common fault in teaching this branch. While the mastery of a good text-book is essential, it does not supercede the necessity of abundant illustration by the teacher, and of personal observation and the application of the rules of hygiene by the pupil. Pupils need enough knowledge of anatomy and physiology to make good instruction in hygiene intelligible and forcible. The proper results of this study in the common schools are more healthful modes of living, and the habits of tracing effects to their cause in the facts of common observation. From this point of view, the structure of the valves of the heart is a less important, because a less fruitful, topic than the simple fact that tight shoes make cold feet.

270. Pupils should be able to give the general plan and functions of the skeleton, skin, digestion, circulatory and respiratory organs, and so much of the hygiene of each as is required for a fairly intelligent care of the body, and for the avoidance of the errors by which its functional powers are impaired. They should be required to give an outline of the nervous system and of the sense organs, a diagram of the eye, and a concise statement of the effects of narcotics and stimulants on the body and mind.

HISTORY.

I.—II.—PRIMARY AND MIDDLE FORMS.

COURSE OF STUDY.

271. 1. Historical and biographical stories illustrating great events in the history of the United States and other nations.

2. Stories from mythology.

SUGGESTIONS TO TEACHERS.

272. In this work the pupil does not in general use a text-book, but some of the matter found in the reader can be used, and some of the books named in the list recommended for public school libraries will be found especially helpful.

273. The stories may be read or, better, told by the teacher and written by the class; but if reading matter of this kind suitable for children is at hand, the pupils should be encouraged to read for themselves; but the daily conversations about what is read should not be omitted.* The work is preparatory; the object is not to impart a systematically arranged body of knowledge, but to cultivate in the minds of the children a desire and disposition to learn more of what was thought and done by those who lived before us.

*The biographical sketches of the lives of the great Americans, as given in Eggleston's *First Book in American History*, (A. B. Co.) furnish the most natural introductions to the study of the great epochs of which these men were the central figures.

274. The selections should be very carefully made. Many of the commonly current anecdotes concerning great men and historic events are either wholly untrue or of such doubtful authenticity as to make them worthless. Others are so highly colored as to give the pupils distorted views.

III.—UPPER FORM.

COURSE OF STUDY.

275. 1. Discovery and early exploration of America. and causes which led different nations to plant colonies.

2. Manner of life in different colonies, and the relations of colonists to the aboriginal races.

3. Conflicting claims of European nations, and the final struggle for supremacy in North America.

4. The causes of the Revolutionary War, and the growth of the desire for self-government.

5. Political history during and immediately following the Revolution; social disorder.

(a) The Continental Congress, how constituted; weakness.

(b) Declaration of Independence.

(c) Articles of Confederation — origin, ratification, significance, principal features.

(d) Treaty of Alliance with France — its military, political and social effects.

(e) Conventions of 1786 and 1787.

(f) Ratification of the Constitution.

(g) Federal and Anti-Federal doctrines.

6. Constitutional period studied from the text-book in use and at greater length than in previous forms.

SUGGESTIONS TO TEACHERS.

276. A knowledge of the main course of events is essential to an adequate conception of the institutions of a

country, and the study of history may become the source of the best culture acquired in the schools. The text should neither be memorized nor used merely for reading; but when a portion has been assigned and studied, the pupil may fairly be held for the substance of the lesson. When a period has been studied, the teacher should summarize the important facts, and show their relation to other events as causes or results.

277. Encourage pupils to bring to the school all the books of biography and history which they can get, bearing upon the topics treated, and to exchange with one another. In no other branch of the course of study is "uniformity of text-books" of less consequence. What is vital and true is in all of them. The habit of "looking up" a subject in all available sources is thus acquired, and pupils learn how to use books to get information. Use the books of the school library freely. To know how people lived in former times, and how they conducted themselves in emergencies, is more important than the details of battles and campaigns.*

278. Interest the children in making a collection of pictures of places of historic interest, of famous buildings and of great men. Watch the papers and magazines for sketches and illustrated articles. If the locality is one of significance, visit the noted places with the class. Create enthusiasm and an abiding interest.

279. Study the geography of the country as it affects the growth and development of the nation. Locate places

* *A Short History of the United States*, by Horace E. Scudder, (Sheldon & Co.), furnishes an excellent text for classes composed of the younger pupils of this form. *A History of the United States for Schools*, by John Fiske, (Houghton, Mifflin & Co.) and *A History of the United States and its People*, by Edward Eggleston (A. B. Co.), furnish attractive and entertaining supplementary reading for older pupils. The book from which the teacher may best obtain a fuller knowledge of the United States as a nation, and become familiar with the origin and succession of political parties, are Alexander Johnston's *History of the United States for Schools*, and his *American Politics*, (Henry Holt & Co.) The two books last mentioned will prove exceedingly helpful in the study and teaching of the United States Constitution.

of historic importance. It will seldom happen that these places will be studied at the same time in the geography and in the history classes; one of these studies, therefore, will afford opportunity to review the other.

280. Children are naturally partisans; in their estimation, one side is always and altogether right, the other wholly wrong. The study of the history of his own country by a person of immature years, may cause this natural tendency to develop into an intellectual habit. Guard against this result, especially if the text in use is written in a glowing style. Cultivate in your pupils a spirit of judicial fairness. Disinterestedness is one of the cardinal intellectual virtues, and this study offers exceptional opportunities to cultivate it

CONSTITUTIONS.

III.—UPPER FORM.

COURSE OF STUDY.

281. 1. *United States Constitution. Preamble:* Source of power recognized; purposes stated.

2. *Legislative:* (1) Reasons for having two houses; membership, organization, limitations, special powers; method of law-making. (**293**)

(2.) Powers most used and most abused, most expansive. (**295**)

(3.) "General welfare" clause, elasticity.

(4.) Impeachment.

282. *Executive:* (1.) Elections; what complications have arisen, and what remedies have been applied, (**292**); Conventions, National and State.

(2.) Powers and duties; special attention to the origin, extent and limitations of the appointing power; Civil Service Commission.

283. *Judicial:* (1.) How Judges are selected, term of office.

(2.) Courts, kinds and relations, powers. (**295**).

284. *Sovereignty:* Supreme law of the land; reserved powers; provisions relating to states, officials and individuals; control of territory and admission of states, guaranty of republican government, citizenship, suffrage.

285. *Amendments:* process of making; what changes have been effected, especially by later amendments.

286. The general organization and work of the several executive departments; as the Post-office, Weather Bureau,

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295. In studying the several powers of congress, it will be found interesting and profitable to refer any bills or laws of which the class have knowledge, as the inter-state commerce law or the silver bill, to the several clauses by which they are authorized. (289)

Also find if possible some laws passed by congress to carry into effect each power conferred by section eight of Art. I. of the constitution. A careful study of this section will impress the student with the magnitude of the work of the government and its complexity.

An understanding of how the constitution is carried into effect in the actual government of the country is necessary to a clear apprehension of the meaning of the text. "The main hope of the usefulness of this work is in awakening the interest of pupils in the process by which government is administered and in stimulating them to talk freely about the various subjects considered."

296. Study the texts of the constitutions more and the editors' comments less. A careful study of the constitutions themselves should be accompanied by an attentive reading and discussion of the contents of such a book as "*The American Citizen*," by Chas. F. Doel (Heath & Co.), which deals with the general questions of public rights and duties and obligations. The object of the book is not merely to state the facts of our government and social institutions, but also to illustrate the *moral principles* which underlie the life of civilized men.

297. Among the books named in the library lists published by the state superintendent the following will be found specially useful as aids to this study:

Among the Law-makers, The American Commonwealth, History of American Politics, The War of Independence, Civil Government in the United States (Fiske.)

DRAWING — SINGING.

298. The branches in which a course of study has been outlined, are those which are required by law to be taught in all common schools. The district board may authorize or require others to be taught. Among these, frequently, with the advice of the teacher, will be found drawing, vocal music, and nature lessons.

299. It is no discrimination against any branch that no formal course is outlined. Where teachers are prepared to give instruction in drawing and singing they are usually competent to arrange for themselves a satisfactory course. Drawing trains the eye and the hand and gives the power to express ideas graphically, greatly quickens and strengthens intellectual activity and comprehension in all branches of study, and lays the foundation for subsequent manual and technical skill in many industrial pursuits. That school is exceptionally fortunate whose teacher is alive to the value of drawing and skillful in giving instruction in it. The attempt of children to represent fairly what they see will lead them to see much more accurately. This is perhaps the best result of teaching drawing in schools. At the same time it turns the natural activity of children into profitable channels.

300. The training in attention, in the use of clear, distinct and musical tones, the subjection of the vocal organs to the will, the habit and the power of concerted action, as well as the opportunity for cultivating humane, patriotic and fraternal sentiments, are features of education of great value, naturally promoted by carefully arranged ex-

ercises in vocal music and by persistent and judicious practice of them.

301. As a rule children like to sing, and their disposito do so should be so guided that good and not evil will result. It is very desirable that children should be taught to sing, by note or by rote, the simpler familiar patriotic songs. Collections of suitable secular school songs are common. Music should commend itself to all teachers for opening and closing exercises, on account of its power as a moral agent, as a balm for wounded spirits and as an inspiration to the highest endeavor.

NATURE LESSONS.

302. Education, in its elementary form, consists very largely in bringing into activity the latent faculties and powers of the child-mind, and in directing and strengthening them by legitimate use. In no one thing have public schools heretofore been so negligent as in training children in the habit of observing the wonderful things around them. They have often been lead to believe that the only source of information concerning everything about which they want to know, is the meager text-book which they so laboriously strive to master. The great book of nature, with its vivid and living object lessons, teeming with useful knowledge which any child may gather, is a sealed book. All the discipline and culture and store of interesting facts so near at hand lie unused.

This defect in our schools is now realized and teachers have within reach abundant means of preparation, in recently published books, in leading articles and in educational journals.

303. The first essential is to grasp the significance of what passes by the name of "scientific method." With younger children as well as with those of maturer years the method is one of observation and examination, of wise direction in the careful, systematic, accurate use of eye, ear and touch. From the facts gathered in this way the pupil is lead to draw inferences and conclusions as he must for himself in later years.

304. The following outline of possible work in this field is submitted, not as a complete scheme, but as suggestive of what any thoughtful teacher may profitably undertake. **(335.)**

I.—II.—PRIMARY AND MIDDLE FORMS.

305. The primary object of Nature Lessons at this stage should be to form strong habits of observation and reflection, by taking advantage of the delight with which children observe living things, and especially those forms which move.

306. Encourage their desire to observe, and to tell what they have seen, by inviting them to bring to the school room such objects as have interested them. Make such objects the foundation of exercises which aim to fix correct habits of oral expression, to develop conversational powers and to strengthen the powers of observation and of rational reflection.

307. Let a part of the "busy work" of the little ones be a diligent search in the fields for objects for the next lesson. Stimulate the children to observe in these excursions the habits of animals, and make the telling of what they have seen the basis of oral language lessons. Carefully avoid the tendency to invent stories for the occasion.

308. These exercises may be given under such heads as:

1. Where animals live, as: On the ground, in the ground; on plants, in plants; on animals, in animals, on the water, in the water; in the air.
2. Ways in which animals travel or move.
3. How different animals eat.
4. What different animals eat.
5. How animals are clothed.
6. Structures animals build.
7. How animals fight and secure prey.
8. Ways in which animals are useful to man.
9. Ways in which animals are harmful to man.
10. How animals care for their young.
11. What animals do when winter comes, etc.

309. Encourage children to collect larvæ and cocoons, to surround them as nearly as possible with the conditions in which they were found and to await the development of perfect insects. Patience is characteristic of the true

observer. Cocoons found in September or October may not hatch till June. A collection of pollywogs kept in water in a glass jar is a continuous source of interest till the last legs appear and the tails fall away. Is there any order in the development? Keep a record of changes as an incentive to accuracy in observation and description.

310. Consult and use freely the natural history books for children in the school library.

311. The study of plants may be made to supply much material for oral and written language lessons and for lessons in drawing; but one of the chief objects of the lessons should be to fix and develop scientific habits of thought and study.

312. It is difficult to outline the subject matter of these lessons, as so much will depend upon the teacher, the time of the year and the materials that can be obtained.

313. In the winter season **314** to **318**, inclusive, are among the subjects that can be studied to advantage.

314. *Seeds.* Take beans, corn, peas, oats, wheat, etc., study their shape; color and suface markings. Soak them for a day or more, remove the skin and examine the inner structures. Carefully draw and describe the parts seen. Compare the bean and the pea, looking for resemblances and differences. In like manner study wheat and corn. Compare the bean with a kernel of corn. Then classify the seeds into two groups of which the two last mentioned are types. Plant the several kinds of seeds in soil in small flower pots, in a shallow pan, or in any convenient dish, and on cotton floating on water in a glass dish. After the plants come up, notice the influence of sunlight upon them. Let new features as they make their appearance be described and drawn carefully. What are seeds for? Why is nourishment stored up in them?

315. *Buds.* Carefully dissect the cottonwood or the Balm-of-Gilead bud. Note the scales, number of leaves, how the leaves are arranged in the bud, etc. How are buds covered or protected on different plants and trees?

stems! Relation to leaf scars?
are buds formed in the fall?
s of twigs bearing live buds, set
ate the changes.
and markings of leaf scars and
of different kinds of shrubs and

longitudinal sections of maple
apare them with sections of older
ferent kinds. Persist in carefully
hat is seen.
al and cross sections of corn stalks
aple.
r study in the spring, summer and
, and can hardly be specified, except
mer. Indeed, it does not matter
ch, as *how* it is studied, though an
o fix some of the fundamental laws
ally as related to agriculture.
Lessons in Botany (Ginn & Co.,
$1.45) will be found interesting

UPPER FORM.

e primary object of nature lessons
e habit of searching for the causes
ulty to explain natural events and
lessons should be such as to make
the reasoning powers but, in the
the concrete object at hand, unless
performed the experiment or
ider consideration.
be studied will be mainly phys-
ch will relate to geography and
ould relate to household and to

farm economy. A few simple lessons are suggested in the following scheme:

323. *Porosity of matter* is shown by water-soaked wood, cloth, stone, sugar. Weigh each when thoroughly dry, and again when soaked. The force which causes water to run into pores is called "capillary attraction." Its applications are seen in soaked ground; in doors sticking in damp weather; in lamp wicks. Place one end of a towel in a basin of water and let the longer end hang down to the floor. Observe the result.

324. *Extreme divisibility of matter* is shown by putting a little sugar or a little salt in a cup of water; every drop is affected. Water is converted into steam and fog by separating the particles.

325. *Inertia* is illustrated by snapping a card from under a cent balanced on the finger tip, and is shown by the difficulty with which a team starts a load it afterwards draws easily. It is the source of danger in jumping from a moving vehicle. It causes mud and water to fly from a revolving wheel, cream from milk in a separator, and water from clothes in a drier.

326. Crowbar, scissors, sheep-shears, pincers, common steelyards, fish pole, pitchfork, bones in animal bodies, illustrate the various classes of *levers*.

327. *Pressure of water* or other liquid, both upward and laterally, may be shown by pushing a small pail bottom downwards into a larger pail filled with water; also, by pushing a tin can with a small hole in the bottom or side into a jar of water. What is the application to floating bodies? Why is a bucket of water so much heavier after it is raised out of the water? Consider pressure on dams and cisterns.

328. *Pressure of air* in every direction may be shown by covering one end of a lamp chimney with sheet rubber, and sucking out some of the air. The rubber is pressed in from any direction. The upward pressure may be shown by filling a tumbler with water and inverting

it carefully after covering the top with a piece of card board or paper. Fill a plate with water, drop a piece of burning paper upon the surface, place an inverted tumbler over it and note the result. Push into the water a pipe open at both ends, cover the top with the fingers and withdraw the pipe. What keeps it full of water? State the application to the siphon and the common pump.

329. Among the chemical sources of heat are the burning of wood and coal; heat is generated by friction, as when the augur becomes hot by boring; it may be produced by repeated blows as of a hammer on a nail.

330. Heat a bolt and try to screw it into a nut that fitted perfectly when cold. Fill a bottle even full of cold water and place it near a hot stove. Clasp and hold in the hand an empty bottle whose neck is thrust beneath the surface of water. What property is illustrated by the last three experiments? Heated air is lighter and is forced upward. This fact is made use of in chimneys and in nearly all schemes for ventilation. Why do we build chimneys so high?

331. Measurements should be made a prominent feature in the work. Every schoolroom should be provided with a good thermometer, one of Sargent's 30-pound spring balances, reading to ounces, a combined meter and yard stick, and a 50-foot tape line. If the season is any other than mid winter, two pupils may determine the velocity of the water in a neighboring stream. Let them carefully measure off 100 or 200 feet. At a given signal let A cast a float on the water while B notes the interval of time between the signal and the arrival of the float at his point. Let the experiment be several times repeated and the average taken. Repeat the experiment where the stream is wider or narrower. Determine the rate per hour. Knowing the rate, the average width and depth, the amount of water carried off per day or week can be determined.

332. Sink a broad tin in the bed of the stream until its rim is flush with the bottom. The sediment being shoved

down stream will now collect in the pan. Note the *time* required to collect a suitable quantity. Measure it, and when it has been thoroughly dried weigh it. Compare the width of the pan with the width of the stream. How much earth is carried down stream in a day? In a year?

333. Let some boy neatly plane a lath, bore a hole in the center, graduate it in inches, and balance it on a wire nail driven into a firm upright. Let different known weights be used at different distances to balance each other. Let each weight be multiplied by its distance from the center, and note the mechanical and numerical results. If the balanced bodies move upon the center, try multiplying each weight by the distance it moves. Apply the principle to the crowbar or handspike. Suppose the sweep of a horsepower to be lengthened or shortened, what takes place?

334. With the spring balance and a child's wagon, note the force required to draw a load on a hard road, over sod, and through sand. Make similar comparison between the force expended on level road or floor, and incline plane of different slopes. From a study of the results, teach some lessons about roads, and the importance of grading hills.

335. As the purpose of this work is not so much to give instruction as to stimulate the observation and quicken the reasoning faculties of pupils, to make them more alive to their surroundings, there is no necessary sequence of subjects or amount of matter to be taught. The method, however, is all-important. For the work here suggested a simple book of easy experiments is more serviceable than a more elaborate treatise. Among good books of this class is *Frank and Kate: How they found out*, by A. A. Upham. (Tracy, Gibbs & Co.)

336. As for apparatus, rubber and glass tubing and sheet rubber can usually be bought at the druggist's. A plain tumbler or goblet will serve for a "bell glass," and a pickle bottle or ordinary glass jar used in the household for canning purposes, will serve for the "wide-mouthed

bottle" or jar often needed. Other simple yet fairly serviceable substitutes for more expensive and better special apparatus will be readily found by the teacher and pupils who become interested in the work.

337. *Electricity.* In cold weather rub a lamp chimney or rubber comb briskly on a woolen coat sleeve. Will it attract and repel a little ball made from the pith of a sun-flower stalk and suspended by a silk thread a foot long? Will it attract small bits of paper and other light objects?

338. *A simple battery.* On one side of a stick of wood a half-inch square, fasten by short tacks the end of a piece of sheet copper, two by three inches. Opposite, tack a similar piece of zinc. Between each piece of metal and the strip of wood should be placed the end of an insulated copper wire two feet long. From these ends the insulation should be scraped to give close contact with the metals. Into a tumbler containing twelve or fifteen parts of water, pour one part of sulphuric acid. An ounce of bi-chromate of potash will improve the solution. (Caution: The acid is intensely corrosive and will "eat" wood, cloth or flesh.) If the copper and zinc strips are now immersed in the mixture a good current will flow when the ends of the wires are connected. When the battery is not in use keep the elements out of the liquid in an empty tumbler.

339. Wind four or five layers of No. 24 insulated copper wire on a ten-penny wire nail. Attach the bared ends of this coil to the ends of the battery wires, place the zinc and copper in the liquid and the nail will become an electro-magnet, attracting iron and steel. Break the circuit and the nail ceases to be a magnet. This illustrates a principle used in the telegraph, the telephone, electric bell and nearly every practical electrical device.

340. The current sent through a very fine iron wire, as one strand of a picture wire, will heat it, perhaps red-hot. This experiment illustrates the electric light, electric heating and welding.

[illegible]

[illegible]

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341. Immerse in a solution of blue vitriol two nails attached to the ends of the battery wires, and one of them will be plated with copper. This illustrates the chemical effect of electricity applied in electroplating and electrotyping.

342. Pieces of steel like needles may be permanently magnetized as the wire nail was temporarily. Such permanent magnets may be used to show the laws of magnetic attraction and repulsion mentioned in the physical geography. Suspended so as to permit free motion these will point north and south and illustrate the mariner's compass.

CARE AND USE OF THE SCHOOL LIBRARY.

343. The value of the school library depends largely upon the teacher, who should have charge of it during term time. It should be kept in a secure case, and should be so easy of access that teacher and pupils may turn to it at any time for facts and examples to illustrate points of interest in school or class work.

CARE OF BOOKS.

344. Pupils should be carefully trained to keep books clean and whole. In this training the teacher's example is most effective, but it should be supplemented by kindly counsel. This care develops greater respect for books, more regard for public property, habits of cleanliness, order, thoughtfulness and self-control. It gains for the teacher and pupils the pleasure of handling cleaner and more attractive volumes, and thus adds to the interest in the library. The books last longer, but the saving of money is the least important object to be gained.

345. Pupils should handle the books only when their hands are clean and dry. They should not be allowed to leave them on dusty or damp desks or shelves, in the sunlight or too near stoves, as the light fades and the heat warps the covers. They should not turn down the corners of the leaves nor mark the pages or covers. They should not be permitted to lay opened books downward nor wet their fingers to turn the leaves. These cautions apply with three-fold force to the teacher.

346. Books to be taken to the pupils' homes should be carefully wrapped and guarded in inclement weather. Do not make the children timid about using books, but teach them how to handle them properly.

USE OF THE BOOKS.

347. The vital thing, however, is to lead the children to love good books. To secure this result the teacher must know the books thoroughly and enjoy using them. He must be quick to turn to the library for apt information, illustration or inspiration. He must feel so keenly the pleasure of gaining new thoughts and new power from books that he will not rest satisfied until he has brought the boys and girls under the same spell. Real enthusiasm in a good work is contagious.

348. Among untrained pupils the younger are generally the readiest to feel the charm of books. The books should be read to, and sometimes by the pupils of the Primary Form to secure the following results:

1. To enlarge their vocabularies.
2. To quicken their imaginations.
3. To give the first knowledge of many things outside their immediate surroundings.
4. To give practice in reading.
5. To stimulate their powers of observation.
6. To form a basis for oral language lessons.

349. Most of the few books suited to the needs of pupils of this Form must first be read to them by the teacher. Fortunately these books volumes contain the choicest of the famous old fables and fairy stories, and a number of charming descriptions of child life and of the animal world.

350. The teachers will find it to the school officers and parents willing to admit the use of the books of information in the school library, but by the many people who do not understand that the pupils of the Primary Form need a certain proportion of fables and fairy stories.

351. To illustrate the value of work with this class of literature select as an example the fable found on page 105 of "Fables and Fairy Stories," one of the books recommended in the list of books published by the department.

CHESTNUTS.

by the hearth,
master had laid down
burst with the heat,

CARE
to pull out those

speech, and reached
scarcely had she
back with a cry, for
and made out
r, and a third,
her paws.
, and found the
the chestnuts and eat

animals and, on
and hold the interest
a mental picture,
picture, begin to

the fable in their
story that are new
s their own and en-
of telling the story

ts of the story trains
stories are given, the
story in their order

gains his first en-
learns a classic fable,
prudence and its un-
s in the long memory.
s in this fable he will
and will therefore be in-

person is trying
mental picture wrought
as a most effective

358. As the pupils gain ability and knowledge they will desire to read these fables independently and can be taught to write them, thus securing practice in reading and in written language work.

MIDDLE FORM.

359. In this Form the books should be used:

1. To supplement and add interest to the regular reading lessons.

2. To broaden the study of geography and give a wider knowledge of peoples, their customs, habits, peculiarities and relations to other peoples, and of the countless facts that alone give life and value to the lines, colors and spots that constitute maps.

3. To teach spelling, by observation, and to furnish new lessons.

4. To teach language, by giving object lessons in the use of words and sentences by good writers, and to provide excellent examples for oral and written reproduction.

5. To incite a love for the study of history and to furnish high ideals of life by interesting pupils in the biographies of great and noble men.

UPPER FORM.

360. In this Form the principal benefits to be gained are as follows:

1. To extend the knowledge of the branches studied and to give greater interest.

2. To lead the pupils out on new lines of thought and to afford better opportunities for them to find the lines of work or thought in which they have special tastes or talents.

3. To store the minds with inspiring passages from great authors.

4. To give wider and larger views of life and to lead to the formation of better ideals.

5. To impart the power of discriminating between good and poor books, and to awaken a genuine love of what is best in the former.

352. THE CAT.

A cat and a monk... watching some ch... to roast. The ch... and the monkey s...

"It is plain f... chestnuts."

The cat was ... forward for ... touched the ... she had bur... to get on... though on...

When s... monkey i... them.

353. ... that a... of the ... and ... dev...

3... ow... to ... h... ...

... with a small ...ase in under- ...lusions, facts ...erature, and a ...terpieces which

...om a continuous ... aid in securing ... if read appreciа- ...en it has grown ...ing of an extract ...te children to read

... which each book is ... titles of the books ...g that list issued

... ...ore stress upon the ...ining book will fre- ... ents and will some- ...mily as an audience. ... school and the home ... by the teacher. ... of the books with the ...m. ... subjects arising in ... study of the text-books. ... the most attractive ... d teach them to see ...e work of book-mak-

CLASSIFICATION OF PUPILS UNDER THE COURSE OF STUDY.

365. Arranging the pupils of a district school into classes, and alloting to each class the particular study which it must pursue, usually devolves upon the teacher. On this subject he may receive advice from the district board, and suggestions from the county superintendent; but very properly he is required to bear the responsibility. He can aid very materially the effort to introduce into the common schools the course of study herein advocated; for its success greatly depends upon the correct and efficient classification of the pupils. The following suggestions will prove helpful:

366. He should have a clear conception of the general plan of the Course of Study, the ideas upon which its threefold division is based, the branches of study arranged under each form, the order of the subjects belonging to each branch, and the suggestions offered for pursuing and teaching these subjects.

367. When he knows the advancement of the classes he should determine their relation to the studies of this course.

368. In some schools there exist already the fundamental requirements for easy classification. With such conditions the teacher will consider one group of classes as belonging to the Primary Form, as they are pursuing exclusively the subjects of that form; another to the Middle, and the third to the Upper Form, for the same reason. In many schools, especially those taught during the spring and summer, no advanced pupils will be enrolled. The children present can then be quite easily arranged under

the first two forms. This should be done promptly, and the classes treated as progressing in the course.

369. In other schools there are far too many classes. Here little difficulty will be encountered in arranging the smaller children under the Primary Form. The teacher will have to see that all those who are reciting in the Primer and the First and Second Readers are also giving attention to the other subjects under that form. On their completion of these subjects he will arrange for their examination for promotion to the Middle Form. He should here establish a rule that a pupil who has not in some degree mastered the topics *associated* with these Readers, shall not, at the examination, be advanced to the next form.

370. By a similar procedure, though with more difficulty, he will be able to classify the pupils under the Middle Form. He can take the summary of the studies under the Middle Form and establish the closing limit for all the work accomplished therein. He can arrange for all pupils whose attainments are below this limit to study during the term with a view of reaching it. Those who have finished all the work named he can bring at the proper time into the examination for promotion into the Upper Form. In judging of the advancement of the pupils he must allow for the study which has in many cases been carried on at home, as well as that which has been performed under his own eye in the school-room. In fact, it is believed that this system of a course of study for the common schools will induce many children to pursue by themselves the common branches, particularly those in which they are deficient. The principal requisite to promotion must be the ability of the student to pass the required tests.

371. The teacher will often find the older children well advanced in some studies. and very deficient in others. In those studies in which they are deficient they should be induced, even at the loss of some pride, to bring forward their standing as speedily as possible, They should be shown the great mistake which they are committing in ac-

quiring a partial and one-sided education. Before all the members of this Form can be placed the potent incentives to prepare for the final examinations in the Course, and for the graduation which results from a successful trial on that occasion. These the teacher should present with all the skill and vigor which he can command.

372. He should not be discouraged if he does not for weeks find it possible to organize the older pupils under the regulations of the Upper Form. He should remember that he is endeavoring to introduce a new measure into the school and that success in such an affort always requires a considerable period for reflection and change of feeling. His work in this case is greatly increased by the fixed habits of the boys and girls over twelve years of age who have been trained in classes where there was no regular system to guide them, and who have not yet acquired sufficient independence and strength of mind to comprehend and accept the new arrangements. Besides, the conservatism of the district may sustain the views and conduct of these pupils. There may be a lack of suitable books; the attendance of these advanced children may be irregular; their education may be very unequal, and they may have no genuine enthusiasm for study. He should set himself resolutely to overcome all these for the benefit of his pupils. He must labor until he succeeds; by means of visits with the patrons, by personal influence with the district board, by reasoning with the older children, and, more than all else, by interesting pupils in the study of the various branches included in this Form. The particular measures to be employed in this endeavor he must discover while on the field.

373. He should strive to awaken the interest of the pupils and their parents in the school and in the introduction of the Course of Study. He may begin the use of some methods presented in it for the common branches. He may speak of the advancement of other schools which are trying it, and whose most forward pupils will be examined during the year for graduation. He may explain the ad-

vantages of completing all the studies in the school, and receiving the diploma awarded at its close, and may assure them that elsewhere such exertions have been eminently successful. It will be an important point gained if he induces *one pupil* in his school to commence the effort to finish in the Upper Form the studies of the Course, and to present himself for the closing examination. This pupil is very likely to become the nucleus around which his associates will be collected and in this way the desired classification will be established.

374. The teacher should try to exclude text-books not belonging to the series adopted for the school. This is necessary to limit the daily recitations or exercises to the least practicable number, and to arouse more interest in those which are established. If pupils have different texts in arithmetic, geography, history and constitutions, different classes must not be organized to accommodate them. The essential facts are the same in all.

375. The occasions are quite rare in which it would be proper to add the higher branches to the already overburdened program of the ungraded schools. The teacher may also induce the school board to adopt uniform text-books, as the law requires them to do. He will sometimes have to secure from the board books for children whose parents are unable to provide them.

PROGRAM OF DAILY EXERCISES.

376. A program of recitations and study periods should be posted in the school and closely followed. This orderly arrangement of classes saves the time of teacher and pupils, and develops a habit of preparing for tasks and meeting them promptly. The periods of study in different branches should be so arranged as to separate the studies requiring close application by lighter tasks. A program gives the teacher an opportunity to insist that pupils shall give their full thought to one topic till it is mastered. The power of holding the mind to one thing at a time till that is mastered is necessary to success in business and social life as well as in the school world.

377. If possible, secure the program of your predecessor before beginning the school. Examine it with care and use it until you are sure you can make a better one. Learn the number, age and capacity of the pupils who are to study each branch. Assign each pupil to his proper form, and then make as few classes as possible in each branch. Fix the time you will give to each branch. Take into consideration the number and age of pupils in determining the time you will allot to each class.

378. Any number of pupils in an Upper Form class require more time for recitation than the same number in a Primary Form class; but a few pupils in an Upper Form class may require no more time for recitation than a large number in a Primary Form class. Primary Form classes should recite not less than twice daily, and oftener if possible. If it be impossible to have all classes recite daily

let some recitations of the Upper Form alternate. Twice a week physiology may give place to drawing. In the same way language of the Middle Form may alternate with history and elementary science, the last two furnishing abundance of the best of material for the language class.

379. When several pupils are studying the same branch in the same form and may be separated into several groups of two or three pupils each, and no two groups are working in the same place, do not consider it necessary to have a separate period for the recitation of each group. Have two or more of the groups most nearly equal in advancement recite together during one recitation period. During the recitation period each group in the class may be doing their proper work. But every effort should be made to unite these groups whenever possible into one class having the same lesson. By pushing the backward group and giving special help, while allowing the more advanced group to devote more time to other branches, they may often be brought together and so the work of the school may be done more economically. Make special effort to have each pupil study all the branches for which he is prepared and which he has not completed in any form.

380. Have no pupil recite during two successive recitation periods if it can be avoided. Begin in the morning with those classes which may be depended upon to prepare for the recitation, or with those classes which are able to make little preparation, as Primary Reading classes. Writing or drawing should not come immediately after violent physical exercise.

In carrying out your program, before beginning any recitation be sure that every pupil except those in the class before you has prepared or is preparing his next lesson.

381. The program presented on another page will probably not meet the exact requirements of any school in

Wisconsin. It was not prepared for that purpose, but rather with the hope that the general order of arrangement and apportionment of time might prove suggestive. The apportionment of time among the various branches as shown in 384 may aid inexperienced teachers, and those liable to favor special branches, in making a proper distribution of the time at their disposal.

383. In the following program the time is apportioned among the forms as follows: To the Primary Form, 95 minutes; to the Middle Form, 80 minutes; to the Upper Form, 115 minutes; to the Middle and Upper Forms working together in Physiology and writing exercises, 35 minutes; thus leaving 35 minutes for opening exercises and recesses.

384. By branches the time is apportioned as follows: To Reading, 110 minutes; to Arithmetic, 60 minutes; to Language, 40 minutes; to Geography, 35 minutes; to Spelling, 25 minutes; to History, 20 minutes; to Physiology, 15 minutes; to Writing 20 minutes; to opening exercises, 5 minutes.

385. In this program, the highest class in each branch in each Form is the *A* class.

386. Pupils in the Primary Form should have daily exercises in writing on slates and in number work. Such instructions as may be necessary for this work should be given in some one of the recitation periods allotted for Primary work.

387. Language exercises should be given in connection with the reading lesson in all classes which do not make a regular study of the subject.

882. PROGRAM OF RECITATIONS FOR A DISTRICT SCHOOL HAVING PUPILS IN ALL FORMS.

A. M.

Begin.	Class.	Form.	Branch.	Text Book.
9.00	.....	... .	.. ..	Opening Exercises.
9.05	C	Primary....	Reading	Primer or Chart.
9.15	B	Primary.....	Reading	First Reader.
9.25	A	Primary....	Reading	Second Reader.
9.40	A	Middle.....	Reading	Third Reader.
9.55	A	Upper....	Arithmetic	Practical.
10.15	.....	....	Physiology	General Exercise, Middle and Upper Forms.
10.30		Recess.		
10.45	C	Primary	Reading	Primer or Chart
10.55	A	Primary	Arithmetic	Oral.
11.05	A	Middle.....	Geography.....	Outline Map and Elementary Text-book.
11.20	A	Upper	Geography	Advanced Text-book.
11.40	A	Middle..... ...	Arithmetic	Rudiments
12.00	.....	....	.....	Intermission.

P. M.

1.00	A	Upper....	History and Constitution	Where both branches are studied classes may alternate.
1.20	C	Primary	Reading	Primer or chart.
1.30	B	Primary	Reading...	First Reader.
1.40	A	Primary	Reading	Second Reader.
1.50	A	Middle	Language	Language Lessons.
2.10	.....	....	Writing.	General Exercise, Middle and Upper Form.
2.30		Recess.		
2.45	A	Upper....	Language	Language Lessons or Grammar.
3.05	B & C	Primary....	Arithmetic.	Oral.
3.15	A	Upper..... ...	Reading	Fourth Reader.
3 35	A	Middle	Spelling	Spelling book.
3.45	A	Upper	Spelling	Spelling book.
4.00	.. . .	....	....	Dismissal.

SCHOOL RECORDS

388. The records kept by most of the common schools include only the enrollment, age, attendance and deportment of the pupils. The important items of the classification, standing and progress of these pupils in the studies of each form are wholly ignored. Yet these are important requisites for establishing and maintaining a continuous course of study in the country schools. A record should be kept of the classes which each pupil enters, the time of entering, time of leaving, his standing gained in recitations or examinations, his advancement in his studies during the term, his promotions to higher classes, and suggestions to the succeeding teacher where the pupil should begin at the opening of the next term.

389. The teacher is provided with a register in which should be recorded a summary of the items specified in 388. A suitable form for this is found on page 112.

390. The proper classification of pupils of the common schools and their regular advancement through the course of study depend greatly on making proper records of each pupil's work in each study.

391. The impression seems to prevail that school records are complicated, and therefore difficult. The truth is that the plainest and simplest plan possible is the best.

392. All facts relating to the school necessary for the reports required by law, or by the department of public instruction, may be found in the teacher's register if it has been properly completed.

RECORD OF WORK DONE DURING THE TERM BEGINNING..... ,189 . ENDING ....., 189..

TEACHER.....

After completing the record of any class, draw a line underneath the record, the entire length of the page, to separate it from the record of the next class. First make a complete record of each class in each branch in the Upper Form, then corresponding records for the Middle Form; then for the Primary Form. When the record of a class is complete, enter in the next line the pupils belonging to the class by their numbers, as given in the register.

Subject.	Class.	Form	Text book.	Pages Mastered	Suggestions for the next term.	Work done outside of text-book and extent of work under the various topics in the "Course of Study" for this branch, as found in the "Manual."
Arithmetic.	A.	Upper.	Fish—Complete.	365-394	Review from p. 380.	Omitted Compound Interest, Stocks, Bank Discount, Foreign Exchange and Duties. Followed plan and "Suggestions" in "Course of Study," and "Suggestions to Teachers," found on pages —, — and — of "Manual of Course of Study."—Eighth Edition.
Numbers of the pupils in this class, as found in first part of the Register; 6, 8, 12, 15, 16, 19						

Proceed as above with the remaining classes. The items under subject, class, form, text-book used, and the page on which work was begun under "Pages Mastered," should be entered early in the term. Subjects omitted, and work done outside of text books should be entered at the time. The remaining items should be entered during the last week of the term.

If your register does not contain blanks for these records, use foolscap paper, ruling it so that the records as above shown will run lengthwise of the paper.

EXAMINATIONS AND GRADUATION.

393. Besides the occasional examination of pupils for the purpose of assigning them to the different classes under each Form, and noting their progress in these classes, there should be held three stated ones, one at the close of the work in each Form. The first two are for the purpose of determining whether the pupils are fitted to be promoted from the Primary to the Middle Form and from the Middle to the Upper. The last one is to ascertain whether those who have finished the studies of the Upper Form are entitled to graduation.

394. The examinations for entrance into a higher Form should take place near the close of the term, so as not to interrupt greatly the regular exercises of the school. That at the completion of the full course may best occur once a a year, probably at the end of the winter term. The first examination should be mainly oral and the last mainly written. A minimum standing for each study, and an average for all the studies should be selected. No pupils should be promoted from one form to another or allowed to graduate in the course, who does not reach the minimum and the average standings. This means that no importunity from any source, and no spirit of favoritism on the part of examiners, should be the cause of permitting any pupil to pass without standing the test in every prescribed study. The character of his daily recitations, and his attainments as tested in the occasional examinations may very properly be allowed to influence the minds of the examiners in determining his final standing.